

## **НАСТАВНО-НАУЧНОМ ВЕЋУ УНИВЕРЗИТЕТА У БЕОГРАДУ – ФИЗИЧКОГ ФАКУЛТЕТА**

Наставно-научно веће Универзитета у Београду – Физичког факултета на основу: члана 65. Закона о високом образовању ("Службени гласник РС" број 88/17, 27/18 - др.закон, 73/18, 27/18-др.закон, 67/2019, 6/2020 - др.закон и 11/21.-аутентично тумачење, 67/21,67/21-др.закон,76/23 и 19/25); члана 4. Правилника о условима и начину ангажовања гостујућег професора на Универзитету у Београду; и члана 103. Статута Универзитета у Београду – Физичког факултета, на предлог Катедре за квантну и математичку физику бр. 77/1 од 19. фебруара 2026. године, донело је у школској 2025/2026. години на одржаној 4. седници 25. фебруара 2026. године одлуку о образовању трочлане комисије редовних професора Универзитета у Београду – Физичког факултета за припремање предлога за избор професора др Часлава Брукнера, редовног професора Физичког факултета Универзитета у Бечу, у звање гостујућег професора на Универзитету у Београду – Физичком факултету.

Према наведеној одлуци Наставно-научног већа Универзитета у Београду – Физичког факултета одређена комисија у саставу: редовни професор др Иванка Милошевић, редовни професор др Татјана Вуковић, и редовни професор др Маја Бурић предузела је припремање предлога за избор у звање гостујућег професора на Универзитету у Београду – Физичког факултета професора др Часлава Брукнера, редовног професора на Физичком факултету Универзитета у Бечу.

Одлуком Сената Универзитета у Београду 06-150-1/XXI од 09. јуна 2008. године професор др Брукнер био је први пут изабран у звање гостујућег професора Универзитета у Београду, а Одлуком Сената Универзитета у Београду 06-01 број 61202-3653/3-21 од 17. новембра 2021. године професор др Брукнер био је други пут изабран у звање гостујућег професора Универзитета у Београду.

Задужена комисија примила је уредну целовиту документацију коју је проф. др Часлав Брукнер доставио за избор у звање гостујућег професора за ангажовање на 5 година на Универзитету у Београду – Физичком факултету. Пажљиво проучивши примљени материјал саобразно одговарајућој важећој нормативи о условима и начину ангажовања гостујућег професора на Универзитету у Београду Комисија у напред наведеном саставу сачинила једногласно и на одлучивање Наставно-научном већу Универзитета у Београду – Физичког Факултета подноси следеће образложење:

# Obrazloženje predloga za izbor prof. dr Časlava Bruknera za gostujućeg profesora Fizičkog fakulteta Univerziteta u Beogradu

## 1 OSNOVNI BIOGRAFSKI PODACI

### Lični podaci

Dr Časlav Brukner je redovni profesor na Katedri za Osnove kvantne mehanike i kvantne teorije informacije (*Quantum foundations and quantum information theory*) na Fakultetu za fiziku Univerziteta u Beču i naučni direktor Instituta za kvantnu optiku i kvantnu informaciju Austrijske akademije nauka u Beču (IQOQI-Vienna). Njegov e-mail je: [caslav.brukner@univie.ac.at](mailto:caslav.brukner@univie.ac.at), a podaci o njegovom istraživanju se mogu naći na web stranicama: <http://quantumfoundations.org> i [www.iqoqi-vienna.at](http://www.iqoqi-vienna.at)

### Radno iskustvo

Prof. Brukner je bio zaposlen kao asistent na Fakultetu za fiziku Univerziteta u Beču od 1999. do 2003. godine, potom kao vanredni profesor u periodu između 2003. i 2013. godine. Redovni profesor na katedri Osnove kvantne mehanike i kvantne teorije informacije postaje 2014, a od 2013. je istovremeno i *senior group leader* na Institutu za kvantnu optiku i kvantnu informaciju Austrijske akademije nauka. Usputne stanice njegove karijere su Imperial College u Londonu, gde je proveo 2003. godinu kao Marie Curie stipendista, Tsinghua Univerzitet u Pekingu gde je u periodu od 2005. do 2008. bio *Chair Professor*, Univerzitet u Beogradu gde je gostujući profesor od 2008, i konačno, Internacionalni institut za fiziku u Natalu, Brazil, gde je *Distinguished Visiting Full Professor* od 2017. godine. U periodu od 2013. do 2019. bio je izvršni direktor Instituta za kvantnu optiku i kvantnu informaciju u Beču, a 2020. postao je njegov naučni direktor. Bio je HKIAS *Visiting Fellow* na Hong Kong Institute for Advanced Study, City University of Hong Kong, u periodu 2023-2024, kao i *Distinguished Visiting Research Chair* na Perimeter Institutu, Waterloo, Canada, u periodu 2022-2024.

### Školovanje

Prof. Brukner je studirao fiziku na Univerzitetima u Beogradu i Beču. Master studije fizike završio je na Univerzitetu u Beču 1995 god. Doktorske studije na temu "*Information in Individual Quantum Systems*" radi kod Antona Zeilinger-a (inostranog člana SANU i dobitnika Nobelove nagrade za fiziku) i dobija zvanje *Dr. Tech* 1999. na Tehničkom fakultetu u Beču. Konačno, 2003. habilitira iz oblasti Teorijska kvantna fizika na Univerzitetu u Beču na temu „Information-theoretical Foundations of Quantum Entanglement, Bell's Theorem and Quantum Communication Complexity”.

## 2 NASTAVNA AKTIVNOST

Prof. Brukner predaje na osnovnim i postdiplomskim studijama kao i na letnjim školama iz kvantne fizike. U okviru osnovnih studija držao je predavanja iz predmeta Teorijska klasična mehanika (2012–2016, 2018–2020) i Kvantna mehanika (2014–2015, 2017–2018, 2021, 2025-2026), Viši kurs kvantne mehanike (2020) na Univerzitetu u Beču, kao i Teorijska kvantna optika na Imperial College u Londonu. Na postdiplomskim studijama drži kurseve Moderno zasnivanje kvantne mehanike (2005–do sada) i Kvantna informacija (2005–do sada) na Univerzitetima u Beču i Beogradu, Kvantna kauzalnost (2017) na *VI Quantum Information School*, Paraty, Brazil; Gravitaciona kvantna fizika (2014) na Kineskom univerzitetu za nauku i tehnologiju, Hefei Univerzitet.

Prof. Brukner je objavio članke u 7 knjiga o kvantnoj informaciji i osnovama kvantne mehanike, od kojih izdvajamo: Č. Brukner, *On the quantum measurement problem*, u "[Quantum \[Un\]speakables II](#)", Eds. R. Bertlmann and A. Zeilinger (The Frontiers Collection, Springer, 2016) i Č. Brukner and M. Zukowski, *Bell's Inequalities: Foundations and Quantum Communication*, in "[Handbook of](#)

Natural Computing”, Eds. G. Rozenberg, T.H.W. Baeck, J.N. Kok (Springer, 2011). Zajedno sa vrhunskim naučnicima (Jeffrey Bub, Arthur Fine, Anthony Leggett, David Mermin, Lee Smolin, Anton Zeilinger i Wojciech Zurek) objavio je intervju u knjizi „Elegance and Enigma: The Quantum Interviews“ (Springer 2011).

Prof. Brukner je do sada bio mentor oko 25 doktoranata i oko 20 master studenata. Njegovi studenti su često nagrađivani za svoje doktorske i master radove (dobitnici Hans-Thirringove nagrade, nagrade Wilhelm and Else Heraeus Foundation, Loschmidt nagrade, Doc Award grada Beča, finalisti DPG AMOP doktorske nagrade itd.), a nakon promocije dobijaju ponude u eminentnim istraživačkim centrima (npr. Perimeter Institut, univerziteti u Oksfordu, Minhenu, Kvinslendu) ili dobijaju prestižne postdoktorske stipendije. Doktorske teze dva njegova studenta su nominovana od strane Nemačkog fizičkog društva za štampu u izdanju Springer-a.

### 3 NAUČNA AKTIVNOST

#### Profesionalne aktivnosti

Prof. Brukner je recezent za veliki broj časopisa, uključujući Nature Physics, Nature Communication i Physical Review Letters, kao i naučnih fondacija od kojih izdvajamo European Research Council, John Templeton Foundation, Killam Research Foundations. Organizator je 7 velikih internacionalnih konferencija, osnivač i inicijator nagrade *Paul Ehrenfest Best Paper Award for Quantum Foundations*, koja se od 2016 dodeljuje za najveća dostignuća u oblasti zasnivanja kvantne mehanike Od 2009. do 2012. bio je član John Templeton Foundation’s Eurasian Board of Advisors, a od 2008. do 2015. član editor časopisa New Journal of Physics. Bio je član Evropskog saveta u International Society of Relativistic Quantum Information do 2015, a od 2019. do 2022. je savetnik ovog društva za Evropu, Srednji istok i Afriku. Član je naučnog savetodavnog odbora Perimeter Instituta za period 2026-2029.

#### Nagrade

Prof. Brukner je od 2021. inostrani član Spske akademije nauka i umetnosti.

Sa kolegama je 2019. dobio prvu nagradu fondacije „Gravity Research Foundation“ za esej o gravitaciji. 2015. godine je dobio nagradu „Marko Jarić“, za doprinos konceptualnom i teorijskom zasnivanju kvantne mehanike, odnosno za rad na kvantnoj nelokalnosti i problemu kauzalnosti u kvantnoj mehanici, kao i primenu kvantnih korelacija u kvantnoj informatici. Dobitnik je i nagrade “Paul Ehrenfest Best Paper Award for 2023. for Quantum Foundations” za rad *A no-go theorem for observer-independent facts*, Entropy 20, 350, (2018).

#### Naučni rad

Oblast istraživanja prof. Časlava Bruknera su osnove kvantne mehanike, i njena primena u kvantnoj informatici, kao i fenomeni na granici između kvantne fizike i opšte teorije relativnosti. Njegov h-index je 60 a broj citata 12584 (Scopus, mart 2026): ima 1 rad koji je citiran 1100 puta i 5 radova sa preko 400 citata. Njegovi rezultati su publikovani u 180 radova, između ostalih 36 u časopisu *Physical Review Letters*, 2 u *Nature*, 1 u *Nature Physics Reviews*, 7 u *Nature Physics*, 7 u *Nature Communications*, 2 u *PNAS*. Njegov rad „Bell’s Theorem for Temporal Order“ je među 25 najčitanijih radova u *Nature Communications* u svim disciplinama u 2019. godini. Prof. Brukner je održao više od 190 predavanja na prestižnim univerzitetima i naučnim institutima uključujući univerzitate u Prinstonu i Oksfordu, ETH u Cirihi, Berlin-Brandenburšku akademiju nauka, Nemačku akademiju Leopoldina, Perimeter Institut i Max-Planck Institut za kvantnu optiku u Garching-u. Časopis *Nature* je 3 puta izabrao njegove radove za pregled u okviru “News & Views”, a *Physics Today* je 2 puta je izveštavao o njegovim radovima kao „Top Stories“. Čak je i čuveni časopis *Economist* izvestio o rezultatima njegovog istraživanja.

Rezultati prof. Bruknera se mogu podeliti u sledeće celine:

1. kvantna nelokalnost i kvantne korelacije,
  2. kvantno-klasični prelaz,
  3. kvantna teorija informacije,
  4. informaciono-teorijsko zasnivanje kvantne mehanike,
  5. kvantni referentni sistemi i kvantna kauzalnost,
  6. makroskopski kvantni fenomeni i klasični limes.
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1. **Kvantna nelokalnost i kvantne korelacije:** Prof. Brukner je stekao međunarodnu naučnu reputaciju najpre svojim rezultatima iz oblasti Belovih nejednakosti i kvantne nelokalnosti. Njegova otkrića su omogućila da se na egzaktan način definišu razlike između „kvantnih“ i „klasičnih“ korelacija i čine jednu od najrasprostranjenijih metoda za ekperimentalnu verifikaciju kvantnih korelacija za potrebe kvantne komunikacije i kvantnog računarstva. Jedan od najznačajnijih rezultata prof. Bruknera je otkriće nejednakosti koje nose i njegovo ime, „Werner-Wolf-Zukowski-Brukner nejednakosti“: ovo otkriće je omogućilo egzaktan metod za sistematsku klasifikaciju nelokalnih stanja [122].
  2. **Kvantna teorija informacija:** Jedan od najvažnijih problema u oblasti kvantne informacije jeste izračunavanje kompleksnosti komunikacije. Prof. Brukner je dokazao da je narušenje bar jedne Belove nejednakosti potreban i dovoljan uslov da efikasnost kvantnog protokola prevaziđe efikasnost bilo kog klasičnog protokola [109, 119]. Time je uspeo da pokaže duboku vezu između fundamentalnih i primenjenih osobina kvantnih korelacija i formuliše jedan od retkih kriterijuma u literaturi koji definiše koja kvantno-korelisana stanja su „korisna“. U saradnji sa eksperimentalnom grupom Antona Zeilinger-a, Brukner je razvio prvi teorijski predlog za „pročišćenje“ kvantnih korelacija (*entanglement purification*) na bazi linearne optike. Veruje se da će metoda iz ovog rada, publikovanog u *Nature*-u [126] i citiranog preko 723 puta, biti sastavni deo svih budućih protokola kvantne komunikacije na daljinu. U njegovom radu [66] sa najviše citata (1194) Brukner izvodi jednostavan kriterijum za izračunavanje *quantum discord*-a kao mere neklasičnih korelacija i potencijalnog resursa za kvantne računare.
  3. **Kvantno-klasični prelaz:** Zajedno sa svojim doktorantom Johannes Koflerom, prof. Brukner je 2007. godine razvio novi pristup klasičnom limesu sa težištem na pitanju minimalne preciznosti mernih aparatura da bi se kvantni fenomeni uopšte mogli opservirati. Pokazao je da će, ukoliko je ova preciznost neograničena, kvantni sistemi proizvoljno velike dimenzije narušiti klasičnost definisanu kroz zadovoljenje tzv. Leggett-Garg nejednakosti. Time je potvrdio da limit „velikih kvantnih brojeva“ nije klasični limit. Ukoliko se ograničimo na *coarse-grained* merenja – što odgovara preciznosti naših čula u svakodnevnom životu – opservirani fenomeni postaju klasični. Dva rada iz ove oblasti [85,89] su ukupno citirani oko 550 puta. Osim toga, prof. Brukner je dokazao da efekti kvantnih korelacija mogu biti detektovani čak i u termodinamičkom limesu velikog broja čestica i visokih temperature merenjem makroskopskih veličina kao sto je magnetna susceptibilnost ili toplotni kapacitet [84,100].
  4. **Informaciono-teorijsko zasnivanje kvantne mehanike:** U zajedničkom radu sa Antonom Zeilinger-om, prof. Brukner je predložio da se mnogi kvantni fenomeni poput kvantne komplementarnosti, kvantne slučajnosti i kvantnih korelacija mogu razumeti ukoliko se pretpostavi da jedan kubit sadrži jedan bit informacije [130,140]. Naslovna priča iz *New Scientist*-a iz 2001. godine posvećena je njihovom pristupu. Ova ideja o konačnosti informacionog sadržaja kvantno-mehaničkih sistema je korišćena kao osnova za rekonstrukciju formalizma kvantne mehanike iz informaciono-teorijskih aksioma u radu sa Borivojem Dakićem [137]. Ovaj rad iz 2009. godine je otvorio čitavu oblast istraživanja koja je poznata kao „rekonstrukcija kvantne teorije“.
  5. **Kvantni referentni sistemi i kvantna kauzalnost:** Poslednjih godina prof. Brukner se bavi fenomenima na granici između kvantne fizike i opšte teorije relativnosti. U okviru ove teme prof. Brukner sa svojim doktorantima predlaže eksperiment u kome bi se gravitaciona vremenska dilatacija detektovala kod prostorno delokalizovanih „kvantnih satova“ [61], kao i ekperiment za merenje moguće deformacije komutacionih relacija koja se pretpostavlja u fenomenologiji teorija kvantne gravitacije [62]. U nastavku tog istraživačkog pravca predlaže da efekat gravitacione

vremenske dilatacije može da dovede do dekoherencije, i time klasičnog limesa makroskopskih superpozicija na Zemlji [46]. Drugi pravac u okviru ove teme je utvrđivanje pod kojim se uslovima kauzalne relacije između događaja mogu naći u kvantnoj superpoziciji. 2017. godine prof. Brukner i njegova istraživačka grupa su razvili formalizam kvantne mehanike bez pretpostavke o postojanju globalne kauzalne strukture [51,55]. Veruje se da će ovaj formalizam biti od važnosti u domenu kvantne gravitacije, u kome zbog fluktuacije metričke redosled dva događaja nije dobro definisan. U radu iz 2019. godine, prof. Brukner i njegova grupa uvode koncept „kvantnih referentnih sistema“ i predlažu da se princip kovarijantnosti proširi na transformacije između ovih referentnih sistema [9,18].

## 4 SPISAK PUBLIKACIJA

### A RADOVI U MEĐUNARODNIM ČASOPISIMA

1. T. Strasser, M. Christodoulou, R. Howl, and Č. Brukner, Evidencing quantum gravity with thermodynamical observables, *Phys. Rev. Research* 7, 043299 (2025).
2. C. Cepollaro, A. Akil, P. Cieřliński, A.-C. de la Hamette, and Č. Brukner, Sum of Entanglement and Subsystem Coherence Is Invariant under Quantum Reference Frame Transformations, *Phys. Rev. Lett.* 135, 010201 (2025).
3. S. Fedida, A.-C. de la Hamette, V. Kabel, and Č. Brukner, Knot invariants and indefinite causal order, *Quantum* 9, 1875 (2025).
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12. A. C. de la Hamette, V. Kabel E. Castro-Ruiz, and C. Brukner, Quantum reference frames for an indefinite metric, *Commun. Phys.* 6, 231 (2023).
13. M. Christodoulou, A. Di Biagio, M. Aspelmeyer, Č. Brukner, C. Rovelli, and R. Howl, Locally Mediated Entanglement in Linearized Quantum Gravity, *Phys. Rev. Lett.* 130, 100202 (2023).
14. K. Wang, D. R. Terno, C. Brukner, S. Zhu, and X. S. Ma, Controlling wave-particle duality with entanglement between single-photon and Bell state, *Phys. Rev. A.* 106, 053715 (2022).
15. Č. Brukner, Wigner’s friend and relational objectivity, *Nature Reviews Physics* 4, 628–630 (2022).
16. M. J. Renner and Č. Brukner, Computational Advantage from a Quantum Superposition of Qubit Gate Orders, *Phys. Rev. Lett.* 128, 230503 (2022).
17. G. Rubino, G. Manzano, L. A. Rozema, P. Walther, J. M. R. Parrondo, and Č. Brukner, Inferring work by quantum superposing forward and time-reversal evolutions, *Phys. Rev. Research* 4, 013208 (2022).
18. V. Baumann, M. Krumm, P. A. Guérin, and Č. Brukner, Noncausal Page-Wootters circuits, *Phys. Rev. Research* 4, 013180 (2022).
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## **C RADOVI U ZBORNICIMA MEĐUNARODNIH KONFERENCIJA**

1. J. Kofler and Č. Brukner, A Coarse-grained Schrödinger Cat, in *Quantum ommunication and Security*,

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2. M. Bourennane, Ch. Schmid, P. Trojek, Ch. Kurtsiefer, Č. Brukner, M. Zukowski and H. Weinfurter, Experimental Single Qubit Quantum Multiparty Communication, in Quantum Communication and Security, M. Zukowski, S. Kilin, J. Kowalik (Eds.) Proceedings of the NATO Advanced Research Workshop on Quantum Communication and Security, Gdansk, Poland, 10-13 September 2006, p. 22-30, IOS Press (ISBN 978-1-58603-749-9), Netherlands, (2007).
  3. S. Taylor, S. Cheung, Č. Brukner and V. Vedral, Entanglement in Time and Temporal Communication Complexity, in the "Proceeding for The Seventh International Conference on Quantum Communication Measurement and Computing" (QCMC 2004).
  4. R. Kaltenbaek, M. Aspelmeyer, T. Jennewein, Č. Brukner, M. Pfennigbauer, W. R. Leeb and A. Zeilinger, Proof-of-Concept Experiments for Quantum Physics in Space, Proceedings of SPIE Vol. 5161 (2004) Quantum Communications and Quantum Imaging.
  5. J. Rehacek, Z. Hradil, J. Fiurasek, & Č. Brukner, Optimum Teleportation with Imperfect Bell-State Measurements, Proceedings of SPIE Vol. 888, 16-22 (July 2002).
  6. Č. Brukner and A. Zeilinger, Information Content of an Elementary System and the Foundations of Quantum Physics, Proceedings of 14th International Conference on Laser Spectroscopy, World Scientific (1999).
  7. Č. Brukner and A. Zeilinger, Quantum Complementarity and Information Invariance, in Experimental and Epistemological Perspectives on Quantum Physics, edited by D. M. Greenberger, W. Reiter and A. Zeilinger (Vienna Circle Yearbook 7, Kluwer Academic Publishers, 1999).

## D NAUČNO-POPULARNI RADOVI

1. P. Walther and C. Brukner, Kausalität in der Quantenwelt, Spektrum der Wissenschaften, April 2019.
2. Č. Brukner, Causality in a quantum world, Physics Today online, March 2018.
3. I. Pikovski, M. Zych, F. Costa, and Č. Brukner, How Time Dilation Affects Quantum Superposition, 2Physics blog (2015)
4. M. Zych, F. Costa, I. Pikovski, and Č. Brukner, Quantum complementarity meets gravitational redshift, 2Physics blog, (2012).

## E PREPRINTI

1. J. Kofler and Č. Brukner, Are there fundamental limits for observing quantum phenomena from within quantum theory? Preprint at arXiv:1009.2654
2. J. Kofler, N. Buric and Č. Brukner, Macroscopic realism and spatiotemporal continuity, Preprint at arXiv:0906.4465
3. J. Kofler, R. Ursin, Č. Brukner and A. Zeilinger, Comment on: Testing the speed of 'spooky action at a distance'. Preprint at arXiv:0810.4452
4. H. Böhm, P. S. Böhm, M. Aspelmeyer, Č. Brukner and A. Zeilinger, Quantum Key Growing without Privacy Amplification. Preprint at arXiv:quant-ph/0408179.
5. J. Rehacek, Z. Hradil, J. Fiurasek and Č. Brukner, Designing Optimum CP Maps for Quantum Teleportation. Preprint nr. 1080 of the Erwin Schrödinger Institute, Vienna. Č. Brukner and A. Zeilinger, Quantum Measurement and Shannon Information, A Reply to M.
6. J. W. Hall, Preprint at arXiv:quant-ph/000809.
7. Č. Brukner, W. Laskowski, T. Paterek and M. Zukowski, Multiparticle Bell's Inequalities Involving Many Measurements Settings, Preprint at arXiv:quant-ph/0303187.
8. Č. Brukner, S. Taylor, S. Cheung and V. Vedral, Quantum Entanglement in Time, Preprint at arXiv:quant-ph/0402127.
9. Č. Brukner and V. Vedral, Macroscopic Thermodynamical Witnesses of Quantum Entanglement, Preprint at arXiv:quant-ph/0406040.
10. Č. Brukner, "Do You Have a Permanent Position?" Selected manuscript at the open

## G PREDAVANJA PO POZIVU

1. *On the meaning of the wave function*, Presentation and the round discussion with A. Ney and S. Hartmann at “100 Years of the Schrödinger Equation”, Garching, Germany, January 22<sup>nd</sup>, 2026.
2. *When Performed Experiments Have No Results: Extended Wigner’s Friend Scenarios*, Colloquium at Faculty of Philosophy, Philosophy of Science, and Religious Studies, LMU Munich, Germany, January 21<sup>st</sup>, 2026.
3. *What is an observable in quantum reference frames?* (online presentation), Centre for Quantum Engineering, Research and Education, International Year of Quantum Science and Technology 2025, Kolkata, India, November 13th, 2025.
4. *Invariants under quantum reference frame transformations* (online presentation), qmeets, October 29th, 2025.
5. Indefinite probabilities from finite quantum reference frames, Conference on Quantum Reference Frames 2025, Okinawa Institute of Science and Technology, October 16th, 2025
6. Plenary Speaker, *Modern physics and the unfinished message of quantum foundations*, Joint Annual Meeting of ÖPG and SPS 2025, 19.08.2025, University of Vienna, August 19<sup>th</sup>, 2025.
7. *Reassessing Quantum Einstein’s Equivalence Principle*, Bridging high and low energies in search of quantum gravity, Paris, France, July 8<sup>th</sup>, 2025
8. *What Makes an Observable? Invariance Under Quantum vs. Classical Reference Frames*, Relativistic Quantum Information Conference (North), Naples, Italy, 26 June 2025.
9. *Indefinite Causal Order for Quantum Computation and Quantum Communication*, UCL Summer School, London, June 2nd 2025, UCL London, UK, June 2<sup>nd</sup>, 2025
10. *Quantum mechanics - the next 100 years*, Global Satellite Session - Serbia: Novel Topics in Quantum Science and Technology, March 19<sup>th</sup>, 2025, online
11. *Quantum Foundations: A tutorial*, VCQLada Faculty of Physics, Presentation for the students of the Vienna Center for Quantum Science and Technology, University of Vienna, October 18th, 2024, Vienna, Austria
12. *Incompatible Quantum Probabilities*, Workshop “The case for quantum probabilism”, Vienna, October 18<sup>th</sup>, 2024, Vienna, Austria
13. *What happens?*, Talk given at the ‘Vienna Quantum Foundations Conference’ as part of the ‘Paul Ehrenfest Prize’ award ceremony, 27. September 2024, Vienna, Austria
14. Keynote Speaker: *The common misunderstanding about quantum reference frames and causal orderings*, RQI North 2024 - 14<sup>th</sup> annual conference on Relativistic Quantum Information, 06. August, 2024, Prague, Czech Republic.
15. *Localization of events in classical and non-classical spacetimes*, The workshop "Foundations of quantum physics beyond Bell: Celebrating 60 years of Bell’s theorem“, 16.04.2024, Les Diablerets, Switzerland
16. Keynote Speaker: *Quantum causal structures: from fundamentals to applications* (online), 17th Photonics Workshop (2024), Kopaonik, Serbia, March 14<sup>th</sup>, 2024
17. *Quantum Reference Frames and Quantum Causality*, Frontiers of Quantum Mechanics, Bad Honnef Physics School, organization Markus Arndt and Claus Lämmerzahl, 03.02.-08.02.2024, Bad Honnef, Germany.
18. *Quantum reference frames & indefinite causal order*, Relativistic Quantum Information Circuit in Vienna, 10<sup>th</sup> November 2023.
19. *The GHZ theorem for Wigner and his friends*, From GHZ to Tic Tac Toe: A Symposium to celebrate Danny Greenberger’s 90th birthday, University of Vienna, Austria, 28<sup>th</sup> September, 2023.
20. *Wigner’s friend and relational objectivity*, The Quantum Biology Lecture Quantum Sciences Lecture, October 3<sup>rd</sup>, 2023, virtual talk
21. Quantum Reference Frames for an indefinite metric, Hong Kong Institute for Advanced Studies, Hong

Kong, China, September 15<sup>th</sup>, 2023

22. *Quantum Reference Frames: what are they and what they're good for*, Relativistic Quantum Information Conference North 2023, Chania, Crete, Greece, July 17<sup>th</sup>, 2023
23. *Quantum Reference Frames: what are they and what they're good for*, The 21st Symposium on Condensed Matter Physics, Belgrade, Serbia, June 30<sup>th</sup>, 2023
24. *Is the Moon there where nobody looks*, Center for Advanced StudiesLMU (CASLMU) Ludwig-Maximilians-Universität München, Germany, June 22<sup>nd</sup>, 2023
25. *Relativistic spin qubit and quantum reference frames*, International conference “Quantum Information and Quantum Technology”, June 6<sup>th</sup>, 2023 (online)
26. *Quantum Reference Frames for Gravity*, The Centre for Quantum Information and Foundations, (online) Cambridge, UK, 11<sup>th</sup> May 2023
27. *How does a quantum particle see the world? Reduction and inter-theoretical relationships in the sciences*, Buenos Aires, Argentina, 10<sup>th</sup> February 2023.
28. *Kvantna prepletnost: od radoznalosti za fundamentalna pitanja do kvantne tehnologije – priča o Nobelovoj nagradi za fiziku za 2022 godinu* (in Serbian), Serbian Academy of Sciences and Arts, Belgrade, 27th December 2022.
29. *Wigner's friends*, Wigner's Friends: Theory Workshop, The Institute, Salesforce Tower, San Francisco, USA, 30<sup>th</sup> November 2022
30. *What is it like to be Wigner's friend?*, Essentia Workshop (online), November 17<sup>th</sup>, 2022
31. *How does a quantum particle see the world?* Colloquium at the International Center for Theoretical Physics – South American Institute for Fundamental Research and talk at the School on Quantum Computation, Sao Paulo, Brazil, November 16th, 2022
32. *Quantum Causal Structures*, Institute of Physics, Campinas, Brazil, November 10th, 2022
33. *Objectivity “Bubble”*, Colloquium of the Philosophy Department, Belo Horizonte, Brazil, November 7th, 2022
34. *How does a quantum particle see the world?* Colloquium of the Physics Department, Belo Horizonte, Brazil, November 5th, 2022
35. *How does a quantum particle see the world?* Wigner Colloquium, Wigner Research Center for Physics, Budapest, Hungary, October 4th, 2022
36. *Quantum reference frames and covariance of physical laws*, Yukawa Institute for Theoretical Physics (YITP) workshop „Quantum extreme universe from quantum information“, September 29<sup>th</sup>, 2022
37. *Quantum reference frames and covariance of physical laws*, Causalworlds workshop, September 13th, 2022, Zürich, Switzerland
38. *Falling through masses in superposition: Quantum reference frames for indefinite metrics* Relativistic Quantum Information North, online conference, September 9<sup>th</sup>, 2022
39. *Falling through masses in superposition: Quantum reference frames for indefinite metrics*, (Plenary Speaker), 23<sup>rd</sup> International Conference on General Relativity and Gravitation (GR23), Liyang, China, online conference, July 4<sup>th</sup>, 2022
40. *Falling through masses in superposition: Quantum reference frames for indefinite metrics* Humboldt Kolleg conference on interface of particle, gravity and quantum physics, June 26<sup>th</sup>, 2022, Kitzbühel, Austria
41. *Falling through masses in superposition: Quantum reference frames for indefinite metrics* Mathematical and Conceptual Aspects of Quantum Theory, Oaxaca, June 17<sup>th</sup>, 2022
42. *Objectivity “Bubble”*, The Quantum Information Structure of Spacetime Conference, London Ontario, Canada, June 8th, 2022.
43. *Falling through masses in superposition: Quantum reference frames for indefinite metrics*, Seminar at University College London, UK, May 12<sup>th</sup>, 2022
44. *Quantum causal structures*, International Network on Acausal Quantum Technology Lunch Event,

Glasgow, UK, March 31<sup>st</sup>, 2022.

45. *Falling through masses in superposition: quantum reference frames for indefinite metrics*, DPG Tagung – Hauptvortrag, Fachverband Theoretische und Mathematische Grundlagen der Physik, March 23<sup>rd</sup>, 2022
46. *Quantum reference frames for indefinite metrics: falling through masses in superposition*, Laboratory for Physical Science, University of Maryland, USA (online), November 3<sup>rd</sup>, 2021
47. *Quantum superposition of entropic times*, ETH Workshop: Time in Quantum Theory: from mathematical foundations to operational characterization, Zürich, Switzerland, September 2<sup>nd</sup>, 2021.
48. *Quantum reference frames for space and space-time*, Conference “Quantizing Time”, Perimeter Institute, Waterloo, Canada (online), June 14, 2021.
49. *Quantum superposition of entropic times*, Complex Systems and Biological Physics Seminar, Stockholm University, Sweden (online), June 10, 2021.
50. *Quantum reference frames and Einstein’s equivalence principle*, Workshop on Quantum Foundations, Gravity, and Causal Order, Perimeter Institute, Waterloo, Canada, June 3, 2021.
51. *Quantum causality: fundamentals and quantum information applications*, Workshop: “Basic Problems in Quantum Information”, The Graduate Centre CUNY, New York, USA (online), May 14<sup>th</sup>, 2021.
52. *The weak and the Einstein equivalence principle for quantum reference frames and spacetimes*, Seminar at the Atomic Institute, Vienna, Austria (online), May 7, 2021.
53. *Formulation and tests of Einstein’s equivalence principle in quantum framework*, Quantum Optics Seminar, Ben Gurion University of the Negev, Israel (online), May 5, 2021.
54. *Einstein’s equivalence principle for quantum reference frames and spacetimes*, Workshop “The Quantum & The Gravity 2021” (online), April 26, 2021.
55. *The role of the observer in quantum mechanics (Science Popular, in Serbian)*, Uloga posmatrača u kvantnoj fizici, predavanja na Kolarcu, Beograd (online), April 19, 2021.
56. *On the persistent reality of the observer’s perception*, Les Ateliers du Laboratoire Kastler Brossel (online), March 18, 2021.
57. Participant at the Panel discussion “Is the moon there when nobody looks?” hosted by Ignacio Cirac, "Munich Quantum Stammtisch" (online), March 17<sup>th</sup>, 2021.
58. Participant at the Panel discussion "Optomechanical interfaces of quantum mechanics and gravity" (online), 17<sup>th</sup> February, 2021, UNIKORN Seminars, British Optomechanical Research Network, video: <https://www.youtube.com/watch?v=YwGN0JbTJdM&feature=youtu.be>
59. *Einstein’s equivalence principle for quantum reference frames and spacetimes*, WE-Heraeus-Seminar on “Experimental Tests and Signatures of Modified and Quantum Gravity” (online), February 5, 2021.
60. *Quantum superposition of processes with opposing thermodynamic arrows of time*, the virtual seminar of the Quantum Information Structure of Spacetime (qiss.fr), 17 December 2020.
61. *Quantum superposition of processes with opposing thermodynamic arrows of time*, the virtual seminar of the Quantum Information Structure of Spacetime (qiss.fr), 17<sup>th</sup> December 2020
62. *Quantum superposition of processes with opposing thermodynamic arrows of time*, Workshop “Is Quantum Theory exact? Exploring Quantum Boundaries” (online), 10<sup>th</sup> December 2020.
63. *The covariance of physical laws in quantum reference frames*, Seminar at the Particle Physics Group, Vienna, Austria, March 10<sup>th</sup>, 2020
64. *Timeless formulation of Wigner’s friend scenarios*, The Quantum Information Structure of Spacetime Workshop, The Hong Kong University, 15<sup>th</sup> January 2020
65. *Timeless formulation of Wigner’s friend scenarios*, Invited Colloquium at Perimeter Institute, December 11, 2019.
66. *Observing the observer*, Académie des Sciences Morales et Politiques, 5<sup>th</sup> November 2019, Paris, France
67. *The covariance of physical laws in quantum reference frames*, 5<sup>th</sup> International Conference for Young Quantum Information Scientists, 27<sup>th</sup> September 2019, Sopot, Poland
68. *How the world look like for a quantum particle*, Conference “Quantum Limits of Knowledge”, the Niels

- Bohr Institute, June 18th, 2019, Copenhagen, Denmark
69. *Quantum Causality: Fundamentals and Applications*, Peng Cheng Laboratory - SUSTech, May 29th, 2019, Shenzhen, China
  70. *The covariance of physical laws in quantum reference frames*, X International Symposium “Quantum resources: theory and applications”, May 23<sup>rd</sup>, 2019, Gdansk, Poland
  71. *Quantum Causal Structures*, Program “New Directions in Quantum Information” (The S Week), April 15<sup>th</sup>, 2019, Stockholm, Sweden
  72. *How the world looks like for a quantum particle? -The covariance of physical laws in quantum reference frames*, Seminar at the Belgian Quantum Physics Initiative, April 4<sup>th</sup>, 2019, Brussels, Belgium
  73. *A no-go theorem for objective facts*, Subjectivistic interpretations of quantum probabilities, Journées d'étude à l'École Normale Supérieure, March 14<sup>th</sup>, 2019, Paris, France
  74. *Wigner's friend as a rational agent*, Invited talk at the APS March Meeting 2019, March 7th, 2019, Boston, Massachusetts, USA
  75. *Quantum Causal Structures*, Workshop of the COST Action MP1405, Quantum Structure of Spacetime QSPACE, February 15<sup>th</sup>, 2019, Bratislava, Slovakia
  76. *How the world looks like for a quantum particle? -The covariance of physical laws in quantum reference frames*, 2nd Hong Kong-Shenzhen Workshop on Quantum Information Science, November 26<sup>th</sup>, 2018, Shenzhen, China
  77. *Quantum mechanics and the covariance of physical laws from quantum reference frames*, Workshop “Gravity in Qubits”, SAS Congress Center, Smolenice, November 22<sup>nd</sup>, 2018, Slovakia
  78. *Wigner's friend as a rational agent*, Quantum Maiwair Workshop, The University of Queensland, November 6<sup>th</sup>, 2018, Australia
  79. *(In)definite causal structures in quantum theory and gravity*, The University of Queensland Physics Colloquium, November 2<sup>nd</sup>, 2018, Australia
  80. *Wigner's friend as a rational agent*, Workshop on Concepts of Probability in the Sciences, Erwin Schrödinger Institute, October 30<sup>th</sup>, 2018, Vienna, Austria
  81. *Time and Causality in Quantum Mechanics*, Paul Scherrer Institute Colloquium, October 25<sup>th</sup>, 2018, Villigen PSI, Switzerland
  82. *Quantum Causal Structures*, Progress and Visions in Quantum Theory in View of Gravity: Bridging foundations of physics and mathematics, Max Planck Institute for Mathematics in the Sciences, October 5<sup>th</sup>, 2018, Leipzig, Germany
  83. *Quantum mechanics and the covariance of physical laws from quantum reference frames*, Keynote Speaker, Quantum Foundations and Quantum Information Workshop, July 21<sup>st</sup>, 2018, Natal, Brazil
  84. *Quantum mechanics and the covariance of physical laws from quantum reference frames*, 4<sup>th</sup> Seefeld workshop on Quantum Information, July 6<sup>th</sup>, 2018, Seefeld, Austria
  85. *Quantum Causal Structures*, Conference “New Directions in the Foundations of Physics”, Palazzo dei Papi, June 10<sup>th</sup>, 2018, Viterbo, Italy
  86. *Review of Process Matrix Formalism*, Workshop “Interplay of quantum information, foundations and gravity, June 1<sup>st</sup>, 2018, Austrian Academy of Sciences, Vienna, Austria
  87. *No go theorem for observer-independent facts*, Workshop: “Algorithmic Information, Induction and Observers in Physics” at the Perimeter Institute, April 10<sup>th</sup>, 2018, Waterloo, Canada
  88. *Quantum superpositions of causal orders*, Symposium on the latest achievements in physics on the occasion of the 20<sup>th</sup> anniversary of the “Prof. Dr. Marko Jaric” Foundation, March 24<sup>th</sup>, 2018, Faculty of Physics, Belgrade, Serbia
  89. *Kauzalnost u kvatnom svetu* (in Serbian), Beogradska škola kvantne mehanike, Serija predavanja, Macrh 22<sup>nd</sup>, 2018, Faculty of Physics, Belgrade, Serbia
  90. *Causality in a Quantum World*, Colloquium at the International Institute of Physics, February, 27<sup>th</sup>, 2018, Natal, Brazil
  91. *Bell's theorem for temporal order*, January 22<sup>nd</sup>, 2018; *A no-go theorem for the “facts of the world”*, January 23<sup>rd</sup>, 2018, Workshop on Observers in Quantum Gravity, The University of Rome La Sapienza, Italy
  92. *Quantum tests of time dilation and equivalence principle*, The 48th Winter Colloquium on the Physics

- of Quantum Electronics, January 10<sup>th</sup>, 2018, Snowbird, Utah, USA
93. *Causality in a Quantum World*, Discussion meeting: Foundations of quantum mechanics and their impact on contemporary society, The Royal Society, December 12<sup>th</sup>, 2017, London, UK
  94. *Bell's Theorem for Temporal Order*, Seminar at the Perimeter Institute, November 15<sup>th</sup>, 2017, Waterloo, Canada.
  95. *Bell's Theorem for Temporal Order*, Seminar of the Gravitational Group, University of Vienna, November 9<sup>th</sup>, 2017
  96. *Quantum Causality Lectures*, the VI Quantum Information School Paraty 2017, Lecture I: Device-independent approach to causality: Causal inequalities and causal polytope; Lecture II: Device-dependent approach to causality: Causally non-separable processes; Lecture III: Quantum information processing on indefinite causal structures, August 14<sup>th</sup> to 18<sup>th</sup>, 2017 Paraty, Brazil
  97. *Quantum theory with no global causal order*, Probing the spacetime fabric: from concepts to phenomenology, SISSA/ISAS, July 14<sup>th</sup>, 2017, Trieste, Italy
  98. *Can causal relations be put in a quantum superposition?* Wolfson Time Unconference, Wolfson College, University of Oxford, June 30<sup>th</sup>, 2017, Oxford, UK
  99. *Quantum formulation of the Einstein Equivalence Principle*, Theoriekolloquim der Uni Duisburg-Essen, June 23<sup>rd</sup>, 2017, Germany
  100. *A no-go theorem for "facts of the world"*, Workshop on Participatory Realism, Stellenbosch Institute for Advanced Study, June 7<sup>th</sup>, 2017, Stellenbosch, South Africa.
  101. *Bell's theorem for temporal order*, 14<sup>th</sup> Central European Quantum Information Processing Workshop (CeQIP), May 31<sup>st</sup>, 2017, Smolenice, Slovakia
  102. *Wigner & Friends: A no-go theorem for "facts of the world"*, Workshop Quantum Foundations: The physics of "what happens" and the measurement problem, May 25<sup>th</sup>, 2017, Frascati, Italy.
  103. *Quantenspiele*, Das Festival der österreichischen Wissenschaft WissensDurst, May 17<sup>th</sup>, 2017, Vienna, Austria
  104. *Quantum information on indefinite causal structures*, Conference Secure Communication via Quantum Channels, April 26<sup>th</sup>, 2017, Zentrum für interdisziplinäre Forschung, Universität Bielefeld, Germany
  105. *The Rashomon effect: when interpretations of quantum theory disagree*, "Shut Up and Contemplate!" Symposium, University of Vienna, March 3<sup>rd</sup>, 2017, Vienna, Austria
  106. *Quantum formulation of the Einstein Equivalence Principle*, Scuola Internazionale Superiore di Studi Avanzati (SISSA), February 15<sup>th</sup>, 2017, Trieste, Italy
  107. *Quantum-to-classical transition via coarse-grained measurements*, Nikola Buric Memorial Workshop, Institute of Physics, December 10<sup>th</sup>, 2016, Zemun, Serbia
  108. *Bell's theorem for temporal order*, "Quantum Networks" Workshop, International Institute of Physics, November 22<sup>nd</sup>, 2016, Natal, Brazil
  109. *A no go theorem for "facts of the world"*, conference „Quantum phenomena: Between the whole and the parts“, National Quantum Information Centre, Keynote Speaker, September 23<sup>rd</sup>, 2016 Gdańsk, Poland
  110. *Quantum formulation of the Einstein's Equivalence Principle*, Eighth International Workshop DICE 2016 Spacetime - Matter - Quantum Mechanics, September 15<sup>th</sup>, 2016, Castiglioncello (Tuscany), Italy
  111. *Quantum formulation of the Einstein's Equivalence Principle*, the Frontiers of Matter Wave Optics conference (FOMO) 2016, September 13<sup>th</sup>, 2016, Arcachon, France
  112. *Quantum mechanics and quantum information on indefinite causal structures*, Quantum Technologies Workshop Program Jerusalem-Vienna, Hebrew University, May 30<sup>th</sup>, 2016, Jerusalem, Israel
  113. *Quantum information on indefinite causal structures*, Hong Kong Workshop on Quantum Information and Quantum Foundations, Hong Kong University, May 4<sup>th</sup>, 2016, Hong Kong, China
  114. *Quantum information on indefinite causal structures*, "Quantum Information in Spain ICE-3", at IFISC (CSIC-UIB), April 13<sup>th</sup>, 2016, Palma de Mallorca, Spain
  115. *Indefinite causal order in quantum physics*, The joint McGill-Oxford Workshop on Causality in Quantum Foundations, March 20<sup>th</sup>, 2016, Bellairs Research Institute, Barbados
  116. *Bell's theorem for causal order between events*, Workshop "Quantum Limits of Information Processing", School of Physical & Mathematical Sciences, NTU, March 4<sup>th</sup>, 2016, Singapore

117. *Time dilation in quantum systems and decoherence*, DPG-Frühjahrestagung, 29.02. – 04.03.2016, Keynote Speaker, February 29<sup>th</sup>, 2016, Hamburg, Germany
118. *Decoherence due to time dilation*, 605. WE-Heraeus-Seminar on “Macroscopic Entanglement”, January 21<sup>st</sup>, 2016, the "Physikzentrum Bad Honnef", Germany
119. *Indefinite causal order in quantum mechanics*, The 11th “Vienna Central European Seminar on Particle Physics and Quantum Field Theory” with the topic “Quantum & Gravity”, Faculty of Physics, University of Vienna, November 28<sup>th</sup>, 2015, Austria
120. *Time Dilation in Quantum Systems*, Seminar at the Physics Department, University of Basel, November 6<sup>th</sup>, 2015, Basel, Switzerland
121. *Quantum Clocks and Time*, Conference “Emergent Quantum Mechanics 2015”, Vienna University of Technology, October 25<sup>th</sup>, 2015, Vienna, Austria
122. *Progress on studies of indefinite causal order in quantum physics*, Conference on “Experimental Tests of Quantum Reality” at St Anne’s College, Oxford, September 29<sup>th</sup>, 2015, UK
123. *QIPC on indefinite causal structures*, Quantum Information Processing and Communication (QIPC), Plenary Speaker, September 17<sup>th</sup>, 2015, Leeds, UK
124. *Detecting indefinite causal orders in quantum physics*, Workshop on Time in Physics, ETH Zurich, September 9<sup>th</sup>, 2015, Zürich, Switzerland
125. *Gravitationally interacting quantum clocks*, Relativistic Quantum Information – North 2015, Dartmouth College, July 7<sup>th</sup>, 2015, Hanover, USA
126. *78. Quantum time and quantum causality*, Physics Week School, Federal University of Goiás, June 10<sup>th</sup> -12<sup>th</sup>, 2015, Brasil
127. *On the quantum measurement problem*, Seminar “Quantum antinomies and reality”, Fondation des Treilles – Tourtour, June 5<sup>th</sup>, 2015, France
128. *On the quantum measurement problem*, Conference “Quantum Physics of Nature” (QUPON) May 22<sup>nd</sup>, 2015, Vienna, Austria
129. *Indefinite causal order in quantum mechanics*, Information Theoretic Foundations for Physics Conference, May 11<sup>th</sup>, 2015, Perimeter Institute, Waterloo, Canada
130. *Quantum clocks and quantum causality*, Colloquium at the Naturwissenschaftlich-Technische Fakultät, Universität Siegen, April 16<sup>th</sup>, 2015, Germany
131. *Quantum clocks and quantum causality*, Physics Colloquium at the Physics Department of the University of Crete, March 26<sup>th</sup>, 2015, Iraklion, Greece
132. *Physical reality in the eye of a quantum physicist*, Talk given at the occasion of receiving “Marko Jaric” Prize, Rectorate of the University of Belgrade, March 20<sup>th</sup>, 2015, Belgrade, Serbia
133. *Quantum clocks and decoherence due to time dilation* (in Serbian), Seminar of the Institute of Physics, March 19<sup>th</sup>, 2015, Zemun, Serbia
134. *Quantum causality* (in Serbian), Seminar of the Faculty of Physics, March 18<sup>th</sup>, 2015, Belgrade, Serbia
135. *Decoherence due to time dilation*, Advances and future of fundamental problems of quantum physics studied at different energies – COST-workshop MP1006 “Fundamental Problems in Quantum Theory”, February, 27<sup>th</sup>, 2015 Vienna, Austria
136. *Decoherence due to time dilation*, Workshop on Hierarchy of Quantum Mechanics, February 22<sup>nd</sup>, 2015 Okazaki, Japan
137. *Quantum Clocks and Quantum Causality*, seminar at the Gravitational Physics Group of the University of Vienna, January 15<sup>th</sup>, 2015, Vienna, Austria
138. Lecturer at the University of Innsbruck, Mini Series of Lectures: *Gravitational Quantum Physics*, January 7<sup>th</sup> to 9<sup>th</sup>, 2015, Innsbruck, Austria
139. *Quantum Clocks and Quantum Causality*, seminar at the Excellence Cluster "PRISMA" and the Graduate School "Symmetry Breaking" at the University of Mainz, December 3<sup>rd</sup>, 2014 Germany
140. *Quantum Clocks and Quantum Causality*, Colloquium at the opening event Quantum Information Technologies, Madrid 2014 (QUITEMAD+), Facultad de Ciencias Matemáticas UCM, November 28<sup>th</sup>, 2014, Madrid, Spain
141. *Communication and computation without causal order*, Inauguration workshop of the Paris Centre for Quantum Computing (PCQC) in Paris, Institute Henri Poincare, August 28<sup>th</sup>, Paris, France

142. *Can quantum-mechanical description of causal relations be considered complete?*, Quantum [Un]Speakables II: 50 Years of Bell's Theorem, June 19<sup>th</sup>, 2014, Vienna, Austria
143. *Quantum theory: First reconstruction and then interpretation*, Quantum Theory: from Problems to Advances – QTPA at Linnaeus University, Vaxjo, June 12<sup>th</sup>, 2014, Sweden,
144. *Quantum Causality: from suppositions of clocks to quantum correlations with no causal order*, Physics Colloquia, Graduate School in Science and Technology, University of Pavia, April 10<sup>th</sup>, 2014, Italy
145. *Quantum Causality: from suppositions of clocks to quantum correlations with no causal order*, Plenary Speaker, The COST action Fundamental Problems in Quantum Physics, Weizmann Institute of Science, March 27<sup>th</sup>, 2014, Israel
146. *Quantum correlations compatible with no-causal loops*, Symposium Quantum Correlations Beyond Entanglement, DPG Tagung, March 18<sup>th</sup>, 2014, Berlin, Germany
147. *No-causal loop principle and quantum correlations*, 554. WE-Heraeus-Seminar: “Quantum Contextuality, Non-Localisity, and the Foundations of Quantum Mechanics”, February 19<sup>th</sup>, 2014, Badhonnef, Germany
148. *Quantum correlations with indefinite causal order*, Conference of the Foundational Questions Institute FQXi, January 7<sup>th</sup>, 2014, Vieques, Puerto Rico
149. Lecture Series, *Physics of Quantum Information*, Faculty of Physics, University of Belgrade, December 23<sup>rd</sup> – 27<sup>th</sup>, 2013, Belgrade, Serbia.
150. *Quantum indefiniteness of causal relations*, EmQM13 Emergent Quantum Mechanics –2<sup>nd</sup> International Symposium, October 3<sup>rd</sup> – 6<sup>th</sup>, 2013, Vienna.
151. Lectures Series, *Gravitational quantum physics*, National Laboratory for Physical Sciences at Microscale, University of Science and Technology of China, September 18<sup>th</sup> – October 2<sup>nd</sup>, 2013, Hefei, P. R. China.
152. Plenary talk, *Quantum interference of “clocks”*, Congress of the South African Institute of Physics, Richardsbay (University of Zululand) July 12<sup>th</sup>, 2013, South Africa
153. *Quantum correlations with indefinite causal order*, School of Chemistry and Physics, University of KwaZulu-Natal, July 5<sup>th</sup>, 2013, Durban, South Africa
154. *Quantum correlations with indefinite causal order*, Workshop on closed time-like curves in quantum mechanics, June 24<sup>th</sup> – 29<sup>th</sup>, 2013, Les Treilles, France.
155. *Quantum information, time and causality*, Photonics & Quantum Sciences Research Institute, Heriot-Watt University, May 10<sup>th</sup>, 2013, Edinburgh, UK
156. Plenary Talk, *Quantum correlations with indefinite causal order*, XII Конгрес физичара Србије, Vrnjacka Banja, 2<sup>nd</sup> May, 2013.
157. *Formalism for operational theories with no causal order*, Quantum Malawi Workshop, April 19<sup>th</sup> – 29<sup>th</sup>, 2013, Malawi.
158. *Quantum correlations with indefinite causal order*, Invited Session at the APS March Meeting, Baltimore, March 2013.
159. *New Tests of Quantum Physics*, Department of Physics and Astronomy, University of Sussex, March 4<sup>th</sup>, 2013, Brighton, United Kingdom.
160. Keynote Speaker, *Quantum Causality*, Workshop: Quo Vadis Quantum Physics, International Institute of Physics, 18<sup>th</sup> February – March 1<sup>st</sup>, 2013, Natal, Brazil,
161. *Quantum correlations with no causal order*, Macroscopic Realism and Quantum Physics (MareQ) Symposium, December 13<sup>th</sup>, 2012, Gdansk, Poland.
162. *Quantum correlations with indefinite causal order*, The Eleventh International Conference on Quantum Communication, Measurement and Computation (QCMC), Vienna University of Technology, 30 July – 3 August 2012, Vienna, Austria.
163. *Quantum correlations with indefinite causal relation*, Quantum Information Workshop, July 1 – 6<sup>th</sup>, 2012, in Seefeld in Tirol, Austria.
164. *Quantum Interference of “Clocks”*, Conference: “Relativistic Quantum Information”, Perimeter Institute, June 25 – 28<sup>th</sup>, 2012, Waterloo, Canada.

165. *Quantum interference of “clocks”*, 508. WE-Heraeus-Seminar: “Quantum Meets Gravity and Metrology”, Physikzentrum Bad Honnef, 4<sup>th</sup> – 8<sup>th</sup> June, 2012, Bad Honnef, Germany
166. *Quantum tests with clocks and mirrors in gravity*, Seminar für Neutron-, Festkörper-, und Quantenphysik, Atominstitut der österreichischen Universitäten, May 25<sup>th</sup> 2012, Vienna, Austria
167. *Quantum tests with clocks, mirrors and Alice and Bob in gravity*, Seminar at Palacký University Olomouc, Faculty of Science, May 11<sup>th</sup> 2012, Olomouc, Czech Republic
168. *Interference experiments distinguishing between quantum and generalized probabilistic theories*, Seminar at the Department of Theory of Programming Faculty of Informatics, Masaryk University, May 9<sup>th</sup> 2012, Brno, Czech Republic
169. *Tests distinguishing between quantum and more general probabilistic theories*, Workshop “Foundational questions of quantum information“ in CEA, April 4 – 5, Paris, France
170. *Quantum information meets gravity*, Quantum Information Sciences Workshop, March 23 – 26<sup>th</sup>, 2012, Oxford, UK
171. *Towards the new generation of tests of quantum mechanics*, Workshop: Quantum Foundations in the Light of Quantum Information III”, Centre De Recherches Mathématiques, December 6-12, 2011, Montreal, Canada.
172. *Quantum Games*, „physics:science@school“, eine Kooperation der Fakultät für Physik und des Stadtschulrates Wien, GRG 17, Parhamerplatz 18, November 30, 2011.
173. *Reconstruction of quantum theory: The role of information*, Workshop: Foundations of Quantum Theory: measurement, the quantum to classical transition, and the flow of time, October 26 – 28, 2011, Cape Town/Stellenbosch, South Africa.
174. *Quantum theory in space of probabilistic theories*, International Workshop, Relativistic Quantum Information North, 6 – 8 September 2011, Madrid, Spain.
175. *For and Against Measurement*, The Quantum Physics and the Nature of Reality Meeting, July 3 – 7, 2011, International Academy Traunkirchen, Austria.
176. *Quantum correlations with no causal order*, International Conference: Computability in Europe 2011, “Models of Computation in Context”, 27<sup>th</sup> June – July 2<sup>nd</sup>, 2011, Sofia, Bulgaria.
177. *Quantum Discord: Quantification and Operational Meaning*, ESF-PESC Strategic Workshop on Signatures of Quantumness in Complex Systems, June 29<sup>th</sup> – July 3<sup>rd</sup>, 2011, Nottingham, United Kingdom.
178. Lecturer at the University of Belgrade, Project of the World University Service, Course: “*The Physics of Quantum Information*”, Faculty of Physics, University of Belgrade, May 23<sup>rd</sup> – June 3<sup>rd</sup>, 2011, Belgrade, Serbia.
179. *Quantum correlation with no causal order*, International Conference: Conceptual Foundations and Foils for Quantum Information Processing, Perimeter Institute, May 9 – 13, 2011, Ontario, Canada.
180. *Bell’s inequalities: quantum versus classical probabilities*, Seminar at Kurt Gödel Research Center for Mathematical Logic, April 6<sup>th</sup>, 2011, Vienna, Austria
181. *Quantum Discord: what it is good for and how to measure it*, Seminar at the Department of Theory of Programming Faculty of Informatics, Masaryk University, March 30<sup>th</sup>, 2011, Brno, Czech Republic
182. *Quantum correlations do not imply causal order*, International Conference: “New Frontiers in Quantum Foundations, CUPI 2011”, Clemson University, March 10<sup>th</sup>, 2011, South Caroline, USA.
183. *Measuring Quantum Discord*, International School and Conference on Quantum Information Processing and Applications (QIPA-2011), February 19<sup>th</sup>, 2011, Harish-Chandra Research Institute (HRI), Allahabad, India.
184. Lecturer at an International School on Quantum Information Processing and Applications (QIPA2011), Lectures: *Harnessing Quantum No-Go Theorems*, 14 – 20 February, 2011, Harish-Chandra Research Institute (HRI), Allahabad, India.
185. *Measuring Quantum Discord*, Seminar at NORDITA, University of Stockholm, November 10<sup>th</sup>, 2010, Stockholm, Sweden.
186. *Classical Limit of Quantum Fields*, International Conference: “Quantum coherence and correlations in condensed-matter and cold-atom systems”, 11 – 15 October 2010, Évora, Portugal.
187. *Harnessing Quantum Paradoxes*, October 16<sup>th</sup>, 2010, VERA Seminar, Vera Laboratory, Fakultät für

Physik, Universität Wien.

188. *Why the Quantum? News from an information-theoretical approach*, “Quantum Physics and the Nature of Reality”, International Conference in honour of John Polkinghorne's 80<sup>th</sup> birthday, 26 – 29 September 2010, University of Oxford, UK.
189. *MUBs in generalized probabilistic theories*, Workshop: “Quantum Physics in Higher-Dimensional Hilbert Spaces”, July 27 – August 01, 2010, Internationale Akademie Traunkirchen, Austria.
190. *Quantum theory and beyond: Is entanglement special?*, Workshop: “What exists in the quantum world?”, July 19 – 24, 2010, Internationale Akademie Traunkirchen, Austria.
191. *Information Complementary Relation in Quantum Mechanics*, Lecture Series “Contemporary Views on Entropy in Classical, Quantum and Complex Systems”, University of Vienna & Medical University of Vienna, June 23<sup>rd</sup>, 2010, Austria
192. *Probabilistic Theories: Why Quantum Theory?*, 7th Central European Quantum Information Processing Workshop, 3 – 6 June 2010, Valtice, Czech Republic
193. *Nonlocal Setting and Outcome Information for Violation of Bell's Inequalities*, 9th Conference „New Directions in the Foundations of Physics“, the Mathematical Association of America, April 30<sup>th</sup> to May 2<sup>nd</sup>, 2010 Washington, DC, USA
194. *Quantum theory and beyond: Is entanglement special?*, Seminar at the Department of Theory of Programming Faculty of Informatics, Masaryk University, April 21<sup>st</sup>, 2010, Brno, Czech Republic
195. *Quantum theory and beyond: Is entanglement special?*, Seminar at Faculty of Science, University of Granada, April 13<sup>th</sup>, 2010, Spain
196. *Correlations: Classical, Quantum and Beyond Quantum?*, Vortrag im Rahmen des Chemisch-Physikalischen Gesellschaft, 9. März 2010, Vienna, Austria.
197. *Impossibility of “mirror” quantum mechanics*, Seminar at Institute of Theoretical Physics, ETH Zürich, 18<sup>th</sup> February, 2010, Zürich, Switzerland.
198. *The quantum to classical transition and the complexity of Schrödinger-cat states*, Workshop “Fluctuations, information flow and experimental measurements”, 28 – 29 January 2010, Complex Systems Institute, École Supérieure de Physique et de Chimie Industrielles, Paris, France
199. Plenary talk, *Quantum theory and beyond: Is entanglement special?*, 4<sup>th</sup> QNET Workshop, 10 – 11 December 2009, in the Computing Laboratory of the University of Oxford, UK.
200. *Impossibility of “mirror” quantum mechanics*, Workshop on Quantum Correlations, 30 Nov. -4 Dec. 2009, Centre for Quantum Technologies, NUS Singapore, Singapore
201. *Going Beyond Classical and Quantum Probabilities*, Erwin Schrödinger Symposium 2009, November 20 – 21 2009, Prague, Czech Republic.
202. *What are the costs of dealing with “states of reality” in quantum theory?* Perimeter Institute, International Conference: The Perimeter Institute Australia Foundations (PIAF) ‘09, “New Perspectives on the Quantum State”, September 27<sup>th</sup> - October 2<sup>nd</sup>, 2009, Waterloo, Canada.
203. *Quantum Mechanics as a Theory of Systems with Limited Information Content*, Perimeter Institute, International Conference: Reconstructing Quantum Mechanics, August 9<sup>th</sup> – 16<sup>th</sup>, 2009, Waterloo, Canada.
204. *Resources for simulating quantum measurements*, Seminar at Slovak Academy of Sciences, May 12<sup>th</sup>, 2009, Bratislava, Slovakia.
205. *Recent research results of the Vienna theory group*, Seminar at the Institute of Photonic Sciences ICFO, October 17<sup>th</sup>, 2008, Barcelona, Spain.
206. Keynote Speaker, *Quantum experiment can test mathematical undecidability*, UC 2008 -7<sup>th</sup> International Conference on Unconventional Computation, August 25-28th, 2008, Vienna, Austria.
207. *The quantum to classical transition and the complexity of Schrödinger-cat states*, 15<sup>th</sup> Central European Workshop on Quantum Optics 2008, May 30<sup>th</sup> - June 3<sup>rd</sup>, 2008, Belgrade, Serbia.
208. *Physics of systems with limited information resources*, Workshop “Information primitives and laws of nature”, May 14<sup>th</sup>, 2008, ETH Zürich, Switzerland.
209. *Quantum, classical and coarse-grained measurements*, “Quantum Prague”, Workshop on modern trends in quantum optics and quantum information, Department of Physics & Doppler Institute, FNSPE

- CTU, May 2<sup>nd</sup>, 2008, Prague, Czech Republic.
210. *Quantum Information and the Foundations of Quantum Physics*, Transdisziplinärer Workshop "Information, Control and Communication", Die Junge Akademie an der Berlin-Brandenburgischen Akademie der Wissenschaften und der Deutschen Akademie der Naturforscher Leopoldina, April 10<sup>th</sup> - 12<sup>th</sup>, 2008, Berlin, Germany.
  211. *Testing the (un)decidability of mathematical propositions in quantum experiments*, International School and Conference on Quantum Information, Institute of Physics, Bhubaneswar, Orissa, 4<sup>th</sup> to 13<sup>th</sup> March, 2008, India.
  212. *Quantum Physics and the Finiteness of Information*, Deep Beauty: Mathematical Innovation and the Search for an Underlying Intelligibility of the Quantum World, Princeton University, 3<sup>rd</sup> to 4<sup>th</sup> October 2007, Princeton, USA.
  213. *Non-locality and Information in Quantum Physics*, Meeting and Symposium ENRAGEing Ideas (Meeting of the Marie Curie Research and Training Network: Random Geometry and Random Matrices: From Quantum Gravity to Econophysics), Utrecht University, 7<sup>th</sup> to 8<sup>th</sup> September 2007, Utrecht, Netherlands.
  214. Lecturer at the School of Quantum Information and Quantum Computation (SQIQC 07): *Quantum Information Theory*, 14<sup>th</sup> to 21<sup>st</sup> May 2007, University of Kragujevac, Serbia.
  215. *Classical Physics from Quantum World*, Gdansk 2006 Advanced NATO Workshop, 10<sup>th</sup> -13<sup>th</sup> September 2006, Gdansk, Poland.
  216. *From quantum nonlocality to communication complexity* (1. talk), 29 May 2006 & *Testing and utilizing macroscopic entanglement* (2. talk) 30<sup>th</sup> May, Korean Institute of Advanced Studies, Seoul, Korea.
  217. *Testing and utilizing macroscopic entanglement*, Annual Meeting of the Atom and Molecular Physics Division in Korean Physical Society, 26<sup>th</sup> to 27<sup>th</sup> May 2006, Seoul, Republic of Korea
  218. *Quantum Nonlocality: Fundamentals & Reduction of the Communication Costs*, the 3<sup>rd</sup> workshop Central European Quantum Information Processing, May 4<sup>th</sup> - 8<sup>th</sup>, 2006, Znojmo, Czech Republic.
  219. *Macroscopic Effects of Quantum Entanglement*, Seminar "Order and disorder in complex systems", Institut für Materialphysik, University of Vienna, January 18<sup>th</sup>, 2006, Vienna, Austria.
  220. *Fundamental Link: Bell's Inequalities and Quantum Communication Complexity*, The meeting "Quantum computation and communication with errors" of the Quantum Information Processing Program of the Canada Institute for Advanced Research, December 8<sup>th</sup> -10<sup>th</sup>, 2005, Quebec City, Canada.
  221. *Measures of Information in Quantum Physics*, Workshop: "Information Beyond Shannon", Interdisciplinary Information Science and Technology Laboratory of the University of Central Florida, October 27-28, 2005, Orlando, USA.
  222. Lecturer at the Quantum Information Theory & Technology Summer School, the Cambridge-MIT Institute, Course: *Quantum Nonlocality and Quantum Communication Complexity*, 31<sup>st</sup> August- 5<sup>th</sup> September 2005, Belfast, United Kingdom.
  223. *Macroscopic Phenomena of Quantum Entanglement*, Nonlocal Seminar Vienna-Bratislava, University of Vienna, 24<sup>th</sup> June 2005, Vienna, Austria.
  224. *Quantum versus Classical: Physics and Computation*, Workshop „What is Quantum in Quantum Computation“, 18<sup>th</sup> – 20<sup>th</sup> May 2005, University of Konstanz, Germany.
  225. *How to compute a function without knowing its input? Using quantum entanglement!*, Seminar at the Centre for Logic and Computation, Department of Mathematics, University of Lisbon, 19<sup>th</sup> April 2005, Lisbon, Portugal.
  226. *Quantenkommunikation: Sicherer und Effizienter*, Seminar at the Statistical Group, Department of Mathematics, University of Klagenfurt, 27<sup>th</sup> January 2005, Klagenfurt, Austria.
  227. *Macroscopic Phenomena of Quantum Entanglement*, Seminar at the Ecole Polytechnique, Faculte des Sciences Appliquees, University of Bruxelles, December 22<sup>nd</sup>, 2004, Brussels, Belgium.
  228. *Macroscopic Effects of Quantum Entanglement*, Seminar at the Max-Planck Institut für Quantenoptik,

- 11<sup>th</sup> November 2004, Garching, Germany.
229. *From "Clicks" to the "Quantum"*, International Workshop on "Information and Quantum Physics" University of Vienna, October 31<sup>st</sup> - November 1<sup>st</sup>, 2004, Vienna, Austria.
  230. *Information, Quantum and Complexity*, ESF International Workshop on Quantum Information & Logical Aspects, September 23<sup>rd</sup> – 25<sup>th</sup>, 2004, Porto Conte (Sassari, Sardinia), Italy.
  231. *Entanglement in Space and in Time*, QUOXIC (Quantum Oxford Imperial) Meeting, Oxford University – Computing Laboratory, 19<sup>th</sup> March 2004, Oxford, United Kingdom.
  232. *Can Quantum Nonlocality be Used to Save on Communication?*, Seminar at the Physics Department, Imperial College London, 10<sup>th</sup> December 2003, London, United Kingdom.
  233. Lecturer at the University of Belgrade, Project of the World University Service, Course: „*The Physics of Quantum Information*“, Faculty of Physics, University of Belgrade, 16<sup>th</sup> – 19<sup>th</sup> December 2003, Belgrade, Serbia.
  234. *Entanglement and Complexity of Communication*, Seminar at the Institute of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University, 11<sup>th</sup> November 2003, Brno, Czech Republic.
  235. *Nonlocal Computation via Quantum Nonlocality*, Seminar at the Department of Optics, Palacky University, 10<sup>th</sup> November 2003, Olomouc, Czech Republic.
  236. *Bell's Theorem: From a Discrete to a Continuous Quantum System*, Seminar at the Research Centre for Quantum Information, Slovak Academy of Sciences, 7<sup>th</sup> November 2003, Bratislava, Slovakia.
  237. Lecturer at the Triangle Graduate School 2003 in Particle Physics, Course: "*The Physics of Quantum Information*", 22<sup>nd</sup> – 26<sup>th</sup> September 2003, Bundesheim Raach, Semmering, Austria.
  238. *What are Bell's inequalities good for?*, Young European Physicists Meeting: "Experimental Realization of Quantum Bits, 2<sup>nd</sup> May 2003, Budmerice, Slovakia.
  239. *Information, Bell's Inequalities and Quantum Communication Complexity*, Quantum Structures 2002, Biannual Meeting of the International Quantum Structure Association, Technical University of Vienna, 3<sup>rd</sup> July 2002, Vienna, Austria.
  240. *Quantum Nonlocality: Fundamentals and Applications*, Seminar at the School of Mathematics and Physics, Queen's University, 17<sup>th</sup> May 2002, Belfast, United Kingdom.
  241. *Local Realism, Information and Entanglement*, Seminar at the Faculty of Physics, University of Belgrade, 24<sup>th</sup> April 2002, Belgrade, Serbia.
  242. *Optimal Quantum Procedures and Optimal State Estimation*, Workshop on Quantum Information, 28<sup>th</sup> – 31<sup>st</sup> October 2000, Budmerice, Slovakia.
  243. *Information and the Foundations of Quantum Physics*, Seminar at the Institute for Physics, 22<sup>nd</sup> October 1999, Belgrade, Serbia.
  244. *Quantum Complementarity and Information Invariance*, Workshop on Quantum Coherence, University of Vienna, 13<sup>th</sup> August 1999, Vienna, Austria.

## H MAGISTARSKI I DOKTORSKI RAD

Magistar fizičkih nauka, magistarska teza: "*Diffraction of Matter Waves in Space and Time*", 1995, Univerzitet u Beču

Doktor tehničkih nauka, doktorska disertacija: "*Information in Individual Quantum Systems*", 1999, Bečki Univerzitet tehnologije

# ZAKLJUČAK

U okviru naučne oblasti Kvantna i matematička fizika, kvantna informatika predstavlja jednu od najsavremenijih i najbrže razvijajućih disciplina savremene fizike. Očekuje se da će dalji razvoj ove oblasti, posebno kroz razvoj kvantnih računara, u bliskoj budućnosti značajno transformisati informacionu tehnologiju i time doprineti ukupnom naučno-tehnološkom napretku. Istovremeno, istraživanja u oblasti kvantne informacije obuhvataju i najdublja pitanja zasnivanja kvantne mehanike, uključujući kvantno-mehaničke korelacije, koje još od nastanka kvantne teorije predstavljaju jedan od najzahtevnijih i najintragantnijih problema savremene fizike. Značajan napredak u razumevanju ovih fenomena ostvaren je u poslednjoj deceniji upravo kroz istraživanja povezana sa kvantnom informacijom.

Doktorske akademske studije na Fizičkom fakultetu Univerziteta u Beogradu obuhvataju više predmeta iz uže naučne oblasti kvantne i matematičke fizike. Među njima je i predmet **Kvantna informacija i zasnivanje kvantne mehanike**, koji svojim sadržajem pokriva ključne teme iz oblasti kvantne informacije, kvantnog računanja, kao i pitanja zasnivanja kvantne mehanike.

Prof. dr Časlav Brukner ubraja se među vodeće svetske stručnjake u ovoj oblasti, a Institut za kvantnu optiku i kvantnu informaciju čiji je jedan od naučnih direktora, predstavlja jednu od vodećih svetskih institucija u oblasti kvantne informatike i kvantne optike. Institut je, između ostalog, poznat po pionirskim eksperimentalnim rezultatima u oblasti kvantne teleportacije, za koje je Nobelova nagrada za fiziku za 2022. godinu dodeljena prof. Antonu Cajlingeru, mentoru i kasnije dugogodišnjem saradniku i koautoru prof. Bruknera. Naučni opus prof. Bruknera obuhvata više od 180 publikovanih naučnih radova, koji su citirani preko 12500 puta. Među njima se nalaze radovi objavljeni u najprestižnijim međunarodnim naučnim časopisima, uključujući 36 radova u časopisu *Physical Review Letters*, 2 rada u časopisu *Nature*, 7 radova u *Nature Physics*, 7 radova u *Nature Communications* i 2 rada u *Proceedings of the National Academy of Sciences (PNAS)*.

Pored izuzetnih naučnih rezultata, prof. Brukner je izrazio spremnost da doprinese nastavi na Univerzitetu u Beogradu, na kojem je započeo svoje studije i na kojem je u više navrata već držao nastavu iz ove oblasti. Imajući u vidu njegov međunarodni ugled i naučni doprinos, kao i činjenicu da na Univerzitetu u Beogradu ne postoji ni približno dobra alternativa za izvođenje nastave iz ove visoko specijalizovane oblasti, smatramo da njegov angažman predstavlja izuzetno značajan doprinos kvalitetu doktorskih studija. Izbor prof. dr Časlava Bruknera za gostujućeg profesora na Univerzitetu u Beogradu je od velikog značaja za obezbeđivanje vrhunskog kvaliteta nastave u oblasti kvantne informatike, a ovaj angažman će ujedno dodatno unaprediti dugogodišnju naučnu i nastavnu saradnju između Fizičkog fakulteta Univerziteta u Beogradu i Univerziteta u Beču, naročito sa Institutom za kvantnu optiku i kvantnu informaciju.

Zato predlažemo da se prof. Časlav Brukner izabere za gostujućeg profesora Univerziteta u Beogradu.

Beograd, 24. mart 2026.

dr Ivanka Milošević  
redovni profesor Fizičkog fakulteta

dr Tatjana Vuković  
redovni profesor Fizičkog fakulteta

dr Maja Burić  
redovni profesor Fizičkog fakulteta