

# Curriculum Vitae

## PERSONAL INFORMATION

Name and surname **BLAŽENKA MELIĆ**  
Academic title Prof. Dr.sc. (Dr.rer.nat.)  
Senior scientist with tenure/ equiv. Full Professor with tenure  
Year and institution of PhD obtained 1994, Universität Karlsruhe, Germany  
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Personal web page <http://www.irb.hr/Ljudi/Blazenka-Melic>  
Citizenship Croatian  
Date and place of birth 15.09.1967, Karlovac, Croatia

## RESEARCH FIELDS

Main research field **Theoretical elementary particle physics**  
flavor physics, perturbative and nonperturbative quantum chromodynamics, collider physics, physics beyond Standard Model

## PROFESSIONAL EXPERIENCE

Date (from – until) 9/2016 -  
Institution *Rudjer Boskovic Institute*  
Position **Head of the Theoretical Physics Division**

Date (from – until) 3/2013 -  
Institution *Rudjer Boskovic Institute*  
Position **Head of the Group for Particle Physics and Cosmology**

Date (from – until) 7/2017 -  
Institution *Rudjer Boskovic Institute*  
Position **Senior Scientist with Tenure (equiv. to Full Professor with tenure)**  
Work field *Theoretical particle physics*

Date (from – until) 5/2020 -  
Institution *University of Zagreb*  
Position **Associate Professor – scientific title**

Date (from – until) 11/2015 -  
Institution *University of Rijeka*  
Position **Full Professor – scientific title**

Date (from – until) 7/2012 -  
 Institution *Rudjer Boskovic Institute*  
 Position **Senior Scientist (equiv. to Full Professor)**  
 Work field *Theoretical particle physics*

Date (from – until) 6/2006 –7/2012  
 Institution *Rudjer Boskovic Institute*  
 Position Senior Research Associate (equiv. to Associate Professor at University)  
 Work field *Theoretical particle physics*

Date (from – until) 12/2002 –6/2006  
 Institution *Rudjer Boskovic Institute*  
 Position Research Associate (equiv. to Assistant Professor at University)  
 Work field *Theoretical particle physics*

Date (from – until) 12/1994 –12/2002  
 Institution *Rudjer Boskovic Institute*  
 Position Senior Research Assistant  
 Work field *Theoretical particle physics*

Date (from – until) 4/1991 –12/1994  
 Institution *Rudjer Boskovic Institute*  
 Position Research Assistant  
 Work field *Theoretical particle physics*

## EDUCATION

Date 4.11.1994  
 Place *Karlsruhe, Germany*  
 Institution Universität Karlsruhe, Institut für theoretische Teilchenphysik  
 Title of qualification awarded Dr.rer. nat. (PhD)

Date 12/1992-12/1994  
 Place *Karlsruhe, Germany*  
 Institution Universität Karlsruhe, Institut für theoretische Teilchenphysik  
 Title of qualification awarded PhD study

Date 22.1. 1991  
 Place *Zagreb, Croatia*  
 Institution *University of Zagreb*  
 Title of qualification awarded Dipl. Ing. Phys., Mag. Phys.

Date 4/1991-11/1992  
 Place *Zagreb, Croatia*  
 Institution *University of Zagreb*  
 Title of qualification awarded PhD study

## TRAINING AND VISITS TO FOREIGN RESEARCH AND EDUCATION INSTITUTIONS

Year 4/2018 – 6-2018  
 Place Mainz, Germany  
 Institution Universität Mainz, Institut für Physik / **Alexander von Humboldt fellow – renew visit**

Year 10/2012 – 4/2013  
 Place Riverside, USA  
 Institution University of California Riverside / **Fulbright Fellow**

Year 11-12/2011  
 Place Ljubljana, Slovenia  
 Institution Jožef Stefan Institute

Year 11-12/2008  
 Place Haifa, Israel  
 Institution Technion

Year 8/2007  
 Place Geneva, Switzerland  
 Institution CERN

Year 11/2002 – 5/2003  
 Place Karlsruhe, Germany  
 Institution Universität Karlsruhe, Institut für theoretische Teilchenphysik

Year 5/2001- 10/2002  
 Place Mainz, Germany and Würzburg, Germany  
 Institution Universität Mainz, Institut für Physik and Universität Wuerzburg, Institut für Theoretische Physik und Astrophysik / **Alexander von Humboldt fellow**

Year 12/1992 – 11/1994  
 Place Karlsruhe, Germany  
 Institution Universität Karlsruhe, Institut für theoretische Teilchenphysik  
 PhD in Physics

## LANGUAGES

MOTHER TONGUE	Croatian
ENGLISH	speaking/writing/reading- excellent (C2)/excellent(C2)/excellent(C2)
GERMAN	speaking/writing/reading- excellent (C2)/excellent(C2)/excellent(C2)
SPANISH	speaking/writing/reading- good (B1)/very good(B2)/very good(B2)
ITALIAN	speaking/writing/reading- basic (A1)/good(A1)/good(A1)

## RESEARCH AND OTHER PROJECTS

2018-now (12/2020) principal investigator of the structural Croatian project "Sinergijom do uspjeha: RBI-T-WINNING i ESIF udruženi u jačanju izvrsnosti Zavoda za teorijsku fiziku Instituta Ruđer Bošković (RBI-TWINN-SIN), financed by the Ministry of Science of the Republic of Croatia

2020-now (2/2024) principal investigator on the research project "Heavy Hadron Decays and Lifetimes", financed by the Croatian Science Foundation (HrZZ)

2014-2018 principal investigator on the research project "Physics of the Standard Model and Beyond", financed by the Croatian Science Foundation (HrZZ)

2017-now investigator on the research project "Terascale Physics for the LHC and Cosmos", financed by the Croatian Science Foundation (HrZZ)

2005-2010 principal investigator on the research project "QCD sum rules for exclusive decays of heavy hadrons", institutional partnership (RBI and University of Siegen), promoted by the Alexander von Humboldt foundation; together with Prof.dr. Th. Mannel

2009-2010 principal investigator on the bilateral croatian-french project "Final state interactions in nonleptonic D- and B-decays"

2004-2006 investigator on the bilateral croatian-austrian project "Hard exclusive photo- and electroproduction of heavy quarkonium"

2003-2005 investigator on DFG project (436 KRO 113/6/0-1) "Higher-order QCD corrections in exclusive processes - mesons and baryons"

from 2006 investigator on the research project "Fundamental interactions in elementary particle physics and cosmology", Croatian Ministry of Science, Education and Sport, 098-0982930-2864

## TEACHING

from 2016 teaching postgraduate course "Elementary particle physics" at University of Zagreb

2006- 2016 initiating and teaching the postgraduate course "Effective field theories and physics of heavy quarks" at University of Zagreb

2014-2016 graduate course "Elementary particle physics 2" , at University of Rijeka

2012/2013 postgraduate course "Advanced quantum mechanics and quantum field theory" at University of California Riverside, USA

2005/2006 graduate course "Elementary particle physics" at University of Zagreb

## AWARDS AND RECOGNITIONS

2001 Alexander von Humboldt fellow

2012 Fulbright fellow

4-6/2018 Alexander von Humboldt renew fellowship

## ORGANIZATIONAL SKILLS AND COMPETENCES

2020 Advisory board member of Int. Conference "LHC days in Split", Split, 28 Sept -3. Oct 2020;  
2019 member of the organizing committee of the Int. workshop "Bridging perturbative and non-perturbative physics", Primošten, 7-9. listopada 2019

2018 Advisory board member of Int. Conference "LHC days in Split", Split, 17 -22. Sept 2018;

2017 member of the organizing committee of "Current Trends in Flavor Physics", Paris, France, 29 - 31 March 2017;

2016 Advisory board member of Int. Conference "LHC days in Split", Split, 19 -24. Sept 2016;

2014 Advisory board member of Int. Conference "LHC days in Split", Split, 29. Sept - 4. Oct 2014;

2010 member of the organizing committee of the 3rd International Conference on Nuclear and Particle Physics with CEBAF at Jefferson Lab, NAPP 2010, Dubrovnik, Oct. 3-8 2010  
2009 co-chair of the international workshop "Progress and Challenges in Particle Physics", Primosten, Sept. 29 - Oct. 3 2009  
2006 member of the organizing committee of the international physics conference "2006 LHC days in Split", Split, Croatia, Sept. 2-7 2006

#### MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES COMMISSIONS, COMMITTEES, BOARDS AND WORK GROUPS

from 2016 head of the Theoretical Physics Division, Rudjer Boskovic Institute  
from 2013 member of the Scientific Council of Rudjer Boskovic Institute  
from 2013 head of the Particle Physics and Cosmology Group, Rudjer Boskovic Institute  
from 2013 coordinator in Commission for the collaboration between RBI and PMF, University of Zagreb  
2011-2014 head of the Commission for the purchase of computer equipment at RBI  
2007-2009 member of the administrative board of the Croatian Humboldt Club  
member of the Croatian Humboldt Club  
member of the Croatian Physical Society

#### OTHER RESEARCH ACTIVITIES

2012 -2017 **member of the Editorial Board of The Scientific World Journal** as part of the journal's High Energy Physics subject area

2005-2010 - **associate editor** of the Croatian physical journal "Fizika B"

frequently **refereeing** (more than 100 refereed papers) for the following journals:

- "Nuclear Physics B" (from 2014-)
- "European Physical Journal A" (from 2012-)
- "Physical Review Letters" (from 2005-)
- "Physical Review D" (from 2004-)
- "European Physical Journal C" (from 2004-)
- "Journal of Physics G: Nuclear and Particle Physics" (from 2001-)

**CITESUMMARY (SLAC INSPIRE database, March 2020):**

- total number of the published papers: **44** (41 CC -> 40 in Q1)
- total numbers of the proceedings papers: **34** (17 CC - refereed proceedings)
- total number of citations: **>= 1440**
- average citations per paper: **32**
- h-index: **23**

**TALKS:**

- invited plenary talks at international conferences: **6**
- invited talks at international conferences: **25**
- other talks at international conferences: **6**
- talks at the foreign institutions: **16**

**TOP 10 PAPERS:**

1. G. Duplančić, A. Khodjamirian, Th. Mannel, B. Melić and N. Offen: Light-cone sum rules for  $B \rightarrow \pi$  form factors revisited, JHEP 0804 (2008) 014 (146 citations, IF=5.6, Q1).
2. G. Duplančić and B. Melić:  $B, B_s \rightarrow K$  form factors: An update of light-cone sum rule results, Phys. Rev. D 78 (2008) 054015 (70 citations, IF=4.7, Q2).
3. A. Khodjamirian, Th. Mannel and B. Melić: QCD Light-Cone Sum Rule Estimate of Charming Penguin Contributions in  $B \rightarrow \pi \pi$ , Phys. Lett. B. 571 (2003) 75-84, Phys.Lett.B 572 (2003) 171-180 (published twice in journal) (55 citations, IF=4.6, Q1).
4. B. Melić, B. Nižić and K. Passek: Complete next-to-leading order perturbative QCD prediction for the pion form factor, Phys.Rev.D60(1999) 074004 (102 citations, IF=4.7, Q2).
5. B. Melić, B. Nižić and K. Passek: BLM scale setting for the pion transition form factor, Phys. Rev. D 65 (2002) 053020 (55 citations, IF=4.7, Q2).
6. B. Melić, K. Passek-Kumerički, J. Trampetić, P. Schupp and M.Wohlgenannt, The Standard model on non-commutative space-time: electroweak currents and Higgs sector, Eur. Phys. J. C 42 (2005) 483-497 (91 citations, IF=5.2, Q1).
7. B. Melić, K. Passek-Kumerički, J. Trampetić, P. Schupp and M.Wohlgenannt: The Standard model on non-commutative space-time: strong interactions included, Eur. Phys. J. C 42 (2005) 499-504 (71 citations, IF=5.2, Q1).
8. S. Fajfer, J.F. Kamenik and B. Melić: Discerning New Physics in Top-Antitop Production using Top Spin Observables at Hadron Colliders, JHEP 1208 (2012) 114 (60 citations, IF=5.6, Q1)
9. H.-n. Li and B. Melić: Determination of heavy meson wave functions from B decays, Eur. Phys. J. C 11 (1999) 695-702 (47 citations, IF=5.2, Q1).
10. B. Guberina, B. Melić and H. Štefančić: Inclusive Decays and Lifetimes of Doubly Charmed Baryons, Eur. Phys. J. C 9 (1999) 213-219; Erratum, ibidem, 13 (2000) 551-551. (62 citations, IF=5.2, Q1).

## PUBLICATION LIST

### A1: Articles in CC journals

1. D. Leljak, B. Melić:  $|V_{ub}|$  determination and testing of the lepton flavour universality in semileptonic  $B_c \rightarrow D^{(*)}$  decays, *JHEP* 2002 (2020) 171.
2. S. Groote, J.G. Koerner, B. Melić :A new angle on an old problem: Helicity approach to neutron beta decay in the Standard Model, *Eur.Phys.J C* 79 (2019) 11.948
3. D. Leljak, B. Melić, M.Patra: On the lepton flavour universality in semileptonic  $B_c \rightarrow \eta(c), J/\psi$  decays, *JHEP* 1905 (2019) 094
4. S. Fajfer, B. Melić, M.Patra: Testing spin-2 mediator in  $B \rightarrow s \mu^+ \mu^-$ , *Phys.Rev. D* 97 (2018) no.9, 095036.
5. D. Bečirević, B. Melić, M. Patra, O. Sumensari, Seeking the CP-odd Higgs via  $h \rightarrow \eta(c,b) \ell^+ \ell^-$ , *Phys.Rev. D* 97 (2018) no.1, 015008.
6. O.Antipin, B. Melić: Revisiting the decoupling effects in the running of the Cosmological Constant, *Eur.Phys.J. C* 77 (2017) no.9, 583.
7. B. Melić, M. Patra: Exploring the Top-Higgs FCNC Couplings at Polarized Linear Colliders with Top Spin Observables, *JHEP* 1701 (2017) 048.
8. G. Duplančić, B. Melić: Form factors of  $B, B_s \rightarrow \eta(\prime)$  and  $D, D_s \rightarrow \eta(\prime)$  transitions from QCD light-cone rules, *JHEP* 1511 (2015) 138.
9. D. Bečirević, G. Duplančić, B. Klajn, B. Melić and F. Sanfilippo: Lattice QCD and QCD sum rule determination of the decay constants of  $\eta_c, J/\psi$  and  $h_c$  states, *Nucl.Phys. B* 883 (2014) 306-327.
10. S. Bhattacharya, B. Melić and J. Wudka: Pionic Dark Matter, *JHEP* 1402 (2014) 115.
11. E. Ma and B. Melić: Updated S3 model of quarks, *Phys. Lett. B* 725 (2013) 402
12. S. Fajfer, J.F. Kamenik and B. Melić: Discerning New Physics in Top-Antitop Production using Top Spin Observables at Hadron Colliders, *JHEP* 1208 (2012) 114.
13. S. Groote, J.G. Koerner, B. Melić and S. Prelovšek: Survey of top quark polarization at a polarized linear  $e^+e^-$  collider, *Phys.Rev. D* 83 (2011) 054018.
14. G. Eilam, B. Melić and J. Trampetić: CP violation and the 4th generation, *Phys. Rev. D* 80 (2009) 116003.
15. G. Duplančić and B. Melić:  $B, B_s \rightarrow K$  form factors: An update of light-cone sum rule results, *Phys. Rev. D* 78 (2008) 054015.
16. G. Duplančić, A. Khodjamirian, Th. Mannel, B. Melić and N. Offen: Light-cone sum rules for  $B \rightarrow \pi$  form factors revisited, *JHEP* 0804 (2008) 014.
17. A. Khodjamirian, Th. Mannel, M. Melcher and B. Melić: Annihilation effects in  $B \rightarrow \pi \pi$  from QCD light-cone sum rules, *Phys. Rev. D* 72 (2005) 094012.
18. B. Melić, K. Passek-Kumerički and J. Trampetić:  $K \rightarrow \pi \gamma$  decays and space-time noncommutativity, *Phys. Rev. D* 72 (2005) 057502.
19. B. Melić, K. Passek-Kumerički and J. Trampetić: Quarkonia decays into two photons induced by the space-time non-commutativity, *Phys. Rev.D* 72 (2005) 054004,
20. B. Melić, K. Passek-Kumerički, J. Trampetić, P. Schupp and M.Wohlgenannt: The Standard model on non-commutative space-time: strong interactions included, *Eur. Phys. J. C* 42 (2005) 499-504.
21. B. Melić, K. Passek-Kumerički, J. Trampetić, P. Schupp and M.Wohlgenannt, The Standard model on non-commutative space-time: electroweak currents and Higgs sector, *Eur. Phys. J. C* 42 (2005) 483-497.
22. B. Melić: LCSR analysis of exclusive two body B decay into charmonium, *Phys. Lett. B* 591 (2004) 91.
23. A. Babić, B. Guberina, B. Melić and H. Štefančić: Cabibbo-suppressed decays of the  $\Omega_c$ -feedback to the  $\Xi_c^+ c$  lifetime, *Phys. Rev. D* 70 (2004) 117501.
24. B. Melić, B. Nižić and K. Passek: A note on the factorization scale independence of the PQCD prediction for exclusive processes, *Eur. Phys. J. C* 36 (2004) 453-458.
25. A. Khodjamirian, Th. Mannel and B. Melić: QCD Light-Cone Sum Rule Estimate of Charming Penguin Contributions in  $B \rightarrow \pi \pi$ , *Phys. Lett. B* 571 (2003) 75-84, *Phys.Lett.B* 572 (2003) 171-180 (published twice in journal).
26. B. Melić: Nonfactorizable contributions to  $B \rightarrow J/\psi K$ , *Phys. Rev. D* 68 (2003) 034004.
27. B. Melić, D. Mueller and K. Passek-Kumerički: Next-to-next-to-leading prediction for the photon-to-pion transition form factor, *Phys. Rev. D* 68 (2003) 014013.
28. B. Melić, B. Nižić and K. Passek: BLM scale setting for the pion transition form factor,

- Phys. Rev. D 65 (2002) 053020.
29. J. G. Koerner, B. Melić and Z. Merebashvili: Analyticity, crossing and the absorptive parts of the one-loop contributions to the quark-quark-gluon gauge boson four-point function, Phys. Rev. D 62 (2000) 96011.
  30. J. G. Koerner and B. Melić: Exclusive-inclusive ratio of semileptonic  $\Lambda_b$ -decays, Phys. Rev. D 62 (2000) 74008.
  31. B. Guberina, B. Melić and H. Štefančić: Lifetime-difference of heavy hadrons, Phys. Lett. B 484 (2000) 43-50.
  32. B. Guberina, B. Melić and H. Štefančić: Inclusive Decays and Lifetimes of Doubly Charmed Baryons, Eur. Phys. J. C 9 (1999) 213-219; Erratum, ibidem, 13 (2000) 551-551.
  33. B. Guberina, B. Melić and H. Štefančić: Enhancement of preasymptotic effects in inclusive beauty decays, Phys. Lett. B 469 (1999) 253-258.
  34. H.-n. Li and B. Melić: Determination of heavy meson wave functions from B decays, Eur. Phys. J. C 11 (1999) 695-702.
  35. B. Melić: Perturbative approach to the penguin-induced  $B \rightarrow \pi \Phi$  decay, Phys. Rev. D 59 (1999) 074005.
  36. D. Klabučar, K. Kumerički, B. Melić and I. Picek: On the instanton-induced portion of the nucleon strangeness, Eur. Phys. J. C 9 (1999) 589-599.
  37. B. Melić, B. Nižić and K. Passek: Complete next-to-leading order perturbative QCD prediction for the pion form factor, Phys. Rev. D 60 (1999) 074004.
  38. B. Guberina and B. Melić: Inclusive charmed baryon decays and lifetimes, Eur. Phys. J. C 2 (1998) 697-703.
  39. B. Melić and S. Meljanac: Permutation invariant statistics, duality and simple interpolations, Phys. Lett. A 226 (1997) 22-30.
  40. B. Melić: Hydrogenic atoms with spinless nucleus in a magnetic field, J. Phys. B 27 (1994) 3849-3862.
  41. B. Melić: Zeeman splitting in neutral hydrogenic atoms with spinless nucleus, J. Phys. B 27 (1994) 993-1003.

## **A2: Articles in non-CC journals**

42. B. Melić, B. Nižić and K. Passek: On the complete next-to-leading order PQCD prediction for the pion form factor, Fizika B 8 (1999) 327-334
43. D. Klabučar, K. Kumerički, B. Melić, and I. Picek: Nucleon strangeness as the response to a strangeness-sensitive probe in a class of hadrons models, Fizika B 8 (1999) 505-534
44. A.T. Goritschnig, B. Melić, K. Passek-Kumerički and W. Schweiger: Hard Exclusive Photoproduction of  $\Phi$  and  $J/\Psi$  Mesons, Prog. Part. Nucl.Phys. 61 (2008) 173-174.

## **B1: Articles in CC journals - refereed proceedings**

1. J. G. Koerner and B. Melić: Exclusive and inclusive semileptonic  $\Lambda_b$ -decays, Nucl. Phys. Proc. Suppl. 93 (2000) 13-17.
2. D. Klabučar, K. Kumerički, B. Melić, and I. Picek: Proton strangeness induced by instantons, Proc. of International workshop Symmetry and spin, Czech. J. Phys. 50 (2000) S1 187-193.
3. B. Melić, B. Nižić and K. Passek: BLM scale for the pion transition form factor, Lect. Notes Phys. 616 (2003) 114-122.
4. B. Melić: Exclusive nonleptonic B decays from QCD light-cone sum rules, Lect. Notes Phys. 647 (2004) 287-301.
5. B. Melić: Estimate of the charming penguin contributions to  $B \rightarrow \pi \pi$ , Eur. Phys. J. C 33 (2004) S250-S252.
6. G. Duplančić, A. Khodjamirian, Th. Mannel, B. Melić and N. Offen:  $|V_{ub}|$  determination using  $B \rightarrow \pi$  form factor from light-cone sum rule, J.Phys. Conf. Ser. 110 (2008) 052026.
7. B. Melić: Charmless two-body B-meson decays in QCD, Nucl. Phys. Proc. Suppl. 209 (2011) 129-134.
8. S. Bhattacharya, B. Melić and J. Wudka: Dark Matter Pions, Acta Phys.Polon. B44 (2013) 11, 2359-2366.



9. B. Melić: DisCERNing new physics in  $t\bar{t}$ -production from top-spin observables. *J.Phys.Conf.Ser.* 485 (2014) 012052.
10. A. T. Goritschnig, B. Melic, K. Passek-Kumericki, W. Schweiger: Hard Exclusive  $\Phi$  and  $J/\Psi$  Photoproduction of a Proton, *PoS DIS2014* (2014) 170.
11. S. Bhattacharya, B. Melić and J. Wudka: Pion-like dark matter, *Nucl.Part.Phys.Proc.* 273-275 (2016) 2329-2331.
12. D. Bečirević, G. Duplančić, B. Klajn, B. Melić, F. Sanfilippo: Charmonia decay constants from lattice QCD and QCD sum rules, *Nucl.Part.Phys.Proc.* 273 (2016) 1611-1617.
13. B. Melić, M. Patra: Using Spin Observables and Polarizations to Probe Top-Higgs FCNC Couplings at Colliders, *J. Phys.Conf.Ser.* 878 (2017) No.1, 012026.
14. O. Antipin and B. Melic: Decoupling effects in the running of the Cosmological Constant, *PoS(EPS-HEP2017)043*.
15. B. Melić, M. Patra: Probing Chirality of Top-Higgs FCNC Couplings at Linear Colliders, *PoS(EPS-HEP2017)316*.
16. D. Bečirević, B. Melić, M.Patra, O. Sumensari: Seeking a light CP-odd Higgs state, *PoS EPS-HEP2017* (2018) 678.
17. O. Antipin and B. Melic: Revisiting decoupling effects in the running of the Cosmological Constant, *Int.J.Mod.Phys. A33* (2018) no.34, 1845013.

*B2: Articles in other proceedings*

18. B. Melić: On the perturbative approach to the penguin induced  $B \rightarrow \pi \Phi$  decay, *Proc. of The International Europhysics Conference, HEP99, Tampere, Finland, July 15-21, 1999*, pp. 540-541.
19. D. Klabučar, K. Kumerički, B. Melić and I. Picek: On the instanton induced nucleon strangeness, *Proc. of the XIth Rencontres de Blois, Blois, France, June 27 – July 3, 1999*, pp. 279-281.
20. B. Melić, B. Nižić and K. Passek: On the PQCD prediction for the pion form factor, *Proc. of the 6th INT / Jlab Workshop on Exclusive and Semiexclusive Processes at High Momentum Transfer, Newport News, Virginia, USA, May 20-22, 1999: Newport News 1999, Exclusive and semiexclusive processes at high momentum transfer, World Scientific, 2000*, pp.279-286.
21. B. Guberina, B. Melić and H. Štefančić: Inclusive decays and lifetimes of doubly-charmed baryons, *Proc. of XVII Autumn School, QCD: Perturbative or Nonperturbative?, Lisbon, Portugal, September 29 - October 4, 1999*, pp. 363-368.
22. B. Guberina, B. Melić and H. Štefančić: Preasymptotic effects in  $\Lambda_b$ -decays, *Proc. of The 3rd International Conference on B Physics and CP Violation, Taipei, Taiwan, December 3-7, 1999*, pp. 156-159.
23. B. Guberina, B. Melić and H. Štefančić, Lifetime pattern of heavy hadrons, *Proc. of The 30rd International Conference on High Energy Physics, ICHEP 2000, Osaka, Japan, July 27 - August 2, 2000*, pp. 888-890.
24. B. Melić: Heavy Flavour Hadrons - inclusive decays and lifetimes, *Proc. of the Int. Conf. "LHC days in Split", Split, Croatia, October 4-7, 2000*, pp. 644-658.
25. B. Melić, B. Nižić and K. Passek: Scale dependence and NLO predictions for the pion form factor, *Proc. of the Workshop on the Pion Form Factor, NIKHEF, Amsterdam, Holland, January 18, 2000*, pp. 88-100.
26. B. Melić: The lifetimes of heavy hadrons - A theoretical appraisal, *Proc. of the 4th International Conference on B Physics and CP Violation, BCP4, Ise-Shima, Japan, February 19-23, 2001*, pp. 299-302.
27. B. Melić and R. Rueckl: Nonfactorizable effects in  $B \rightarrow J/\psi K$ , *Proc. of the Workshop on B physics and CP violation, Frontier Science 2002, October 6-11, 2002, INFN, Frascati, Italy, in "Frascati 2002, Frontier science 2002"*, pp. 235-238.
28. A. Khodjamirian, Th. Mannel and B. Melić: Charming penguins in  $B \rightarrow \pi \pi$  from QCD light-cone sum rules, *Proc. of the Workshop on the CKM Unitarity Triangle, IPPP Durham, England, April 5-9, 2003, eConf C0304052:WG409, 2003*.
29. B. Melić: Some aspects of (charmless) B decays from QCD light-cone sum rules, *Proc. of the Int. Conference on Flavor Physics and CP Violation, FPCP 2003, Ecole Polytechnique, Paris, France, June 3-6, 2003, eConf C030603:JEU03, 2003*, pp. 245-249.
30. A.Khodjamirian, Th. Mannel and B. Melić: Charmless B decays and QCD light-cone sum rules - a recent development, *Proc. of the 4th International Workshop on the CKM*

- Unitarity Triangle, Nagoya, Japan, December 12-16, 2006.
31. B. Melić: Introduction to  $\Phi_2$  from charmless B decays, Proc. of the 4th International Workshop on the CKM Unitarity Triangle, Nagoya, Japan, December 12-16, 2006.
  32. A.Khodjamirian, Th. Mannel, M. Melcher and B. Melić: B  $\rightarrow$   $\pi\pi$  hadronic amplitudes from QCD light-cone sum rules, Proc. of EPS International Europhysics Conference on High Energy Physics (HEP-EPS 2005), Lisbon, Portugal, 21-27 Jul 2005, PoS HEP2005:194-197, 2006.
  33. B. Melić: B  $\rightarrow$   $\pi$  and B(s)  $\rightarrow$  K form factors and  $V_{ub}$  determination, Proc. of the 34th International Conference on the High Energy Physics (ICHEP08), Philadelphia, USA, July 29th- August 5th, 2008, SLAC's eConf Proceedings.
  34. S. Groote, J.G. Koerner, B. Melić and S. Prelovšek: Single top quark polarization at  $O(\alpha_S)$  in t-tbar production at a polarized linear e+e- collider, Proc. of 2nd LHC Forum Meeting, Munich, Germany, 14-15 July 2011 and Helmholtz Alliance Linear Collider Forum : Proceedings of the Workshops Hamburg, Munich, Hamburg 2010-2012, Germany.
  35. A. Goritschnig, B.Melić, K. Passek-Kumericki, W. Schweiger: Hard Exclusive  $\Phi$  and J/ $\Psi$  Photoproduction off a Proton, PoS DIS2014 (2014) 170.

## CONFERENCE TALKS AND SEMINARS

### ***A: Invited plenary talks at international conferences***

- 2002** "Exclusive nonleptonic B decays from QCD light-cone sum rules", invited plenary talk given at the International School on Heavy Quark Physics, Dubna, Russia, May 27 - Jun 5, 2002.
- 2003** "Some aspects of (charmless) B decays from QCD light-cone sum rules", invited plenary talk given at International Conference on Flavor Physics and CP Violation, FPCP 2003, Ecole Polytechnique, Paris, France, June 3-6, 2003.
- 2003** "LCSR analysis of exclusive two-body B decays", invited plenary talk given at 3rd International Workshop on B physics and CP violation (BCP3), Taipei, Taiwan, September 29 - October 1, 2003.
- 2010** "Charmless two-body B-decays in QCD", invited talk given at the 3rd Workshop on Theory, Phenomenology and Experiments in Heavy Flavour Physics (Capri2010), Anacapri, Island of Capri, Italy, July 3- 5, 2010.
- 2011** "CP violation with the fourth generation of quarks", invited talk given at the Int. Workshop The Role of Heavy Fermions in Fundamental Physics (Portoroz 2011), Portoroz, Slovenia, April 11-14, 2011.
- 2017** "BSM Higgs decays with quarkonium", invited talk given at the 12th Int. Workshop on Heavy Quarkonium (QWG 2017), Beijing, China, November 6-10, 2011.
- 2019** "Bc semileptonic decays as a probe of lepton flavour universality", invited talk given at COST workshop on Higgs and flavour physics: Present and Future, Lisbon, Portugal 14-17 January, 2019.
- 2019** "Semileptonic Bc decays", Int. Workshop "Implications of LHCb measurements and future prospects", CERN, Geneva, Switzerland, 16-18.10.2019.

### ***B: Invited talks at international conferences***

- 1999** "Perturbative approach to the penguin induced B  $\rightarrow$   $\pi\Phi$  decay", invited talk (parallel session) given at the International Europhysics Conference, HEP99, Tampere, Finland, July 15-21, 1999 .
- 2000** "NLO prediction and scale dependence of the pion form factor", invited talk given at the Workshop on the Pion Form Factor, NIKHEF, Amsterdam, Netherland, January 18, 2000 .
- 2000** "Lifetime pattern of heavy hadrons", invited talk (parallel session) given at the 30th International Conference on the High Energy Physics, ICHEP 2000, Osaka, Japan, July 27 - August 2, 2000.
- 2000** "Heavy flavour hadrons - inclusive decays and lifetimes", invited talk given at the International Conference "LHC days in Split", Split, Croatia, October 4-7, 2000.
- 2002** "Nonfactorizable effects in B  $\rightarrow$  J/ $\psi$  K", invited talk (parallel session) given at the

Workshop on B physics and CP violation, Frontier Science 2002, INFN, Frascati, Italy, October 6-11, 2002.

**2002** "Nonfactorizable effects in  $B \rightarrow J/\psi K$ ", invited talk (parallel session) given at the Workshop on B physics and CP violation, Frontier Science 2002, INFN, Frascati, Italy, October 6-11, 2002.

**2003** "Charming penguins in  $B \rightarrow \pi \pi$  from QCD light-cone sum rules", invited (parallel session) talk given at the Workshop on the CKM Unitarity Triangle, IPPP Durham, England, April 5-9, 2003.

**2003** "Estimate of charming penguins in  $B \rightarrow \pi \pi$ ", invited talk (parallel session) given at the International Europhysics Conference on High Energy Physics EPS, Aachen, Germany, July 17-23, 2003.

**2004** "Charmedless B decays and (non)factorization", invited talk given at the International conference 2004 LHC Days in Split, Split, Croatia, October 5-9, 2004.

**2006** "QCD light-cone sum rules for charmless B decays - most recent developments", invited talk given at the 4th International Workshop on the CKM Unitarity Triangle, Nagoya, Japan, December 12-16, 2006.

**2006** "Introduction to  $\Phi_2$  from charmless B decays", invited talk given at the 4th International Workshop on the CKM Unitarity Triangle, Nagoya, Japan, December 12-16, 2006.

**2008** " $B \rightarrow \pi$  and  $B(s) \rightarrow K$  form factors and  $V_{ub}$  determination", invited talk given at the 34th International Conference on the High Energy Physics (ICHEP08), Philadelphia, USA, July 29-August 5, 2008.

**2010** "B-physics in the LHC era - an overview", invited talk given at the International conference LHC Days in Split - 2010, Split, Croatia, October 4-9, 2010.

**2011** "The puzzling  $B \rightarrow PP$  decays", invited talk given at the Workshop "Colour meets flavour", (Quantum Chromodynamics and Flavour Physics), University of Siegen, Germany, October 13-14, 2011.

**2012** "Discerning new physics in  $t\bar{t}$ -production from the top spin observables", invited talk given at the 18th International Symposium on Particles, Strings and Cosmology, PASCOS2012, Merida, Mexico, June 3-8, 2012.

**2013** "Pionic Dark Matter", invited talk given at the workshop Selected Challenges in Particle Phenomenology, Belica, September 19-20, 2013.

**2014** "Charmonia decay constants from QCD Sum Rules and Lattice QCD", invited talk given at the Int. Workshop „From Strange, through Charm and Beauty to the Top“, Ljubljana, April 16th, 2014.

**2014** "Charmonia decay constants from lattice QCD and QCD sum rules", invited talk given at PASCOS2014, 20th Int. Symposium on Particles, Strings and Cosmology, Warsaw, 22-27 June 2014.

**2014** "Charmonia decay constants from lattice QCD and QCD sum rules", invited talk given at the ICHEP2014, 37th International Conference on High Energy Physics (ICHEP), Valencia, 2nd-9th July 2014.

**2014** "Pion-like Dark Matter", poster presentation at 37th International Conference on High Energy Physics ICHEP2014, Valencia, Spain, July 2-9, 2014.

**2016** "Exploring the Top-Higgs FCNC Couplings at Colliders", talk at the International Workshop "Hadronic Contributions to New Physics Searches", 25-30 September 2016, Puerto de la Cruz, Tenerife, Spain.

**2016** "Exploring the top-Higgs FCNC couplings at colliders", talk at the International Workshop Selected topics in flavor and collider physics, Brda2016, October 19 - 21, 2016, Brda, Slovenia.

**2016** "Using spin correlations to probe top-Higgs FCNC couplings at colliders", talk at the International Workshop Discovery at the LHC, Kruger2016, December 3 - 9, 2016, Kruger Gate, South Africa.

**2017** "Decoupling effects in the running of the Cosmological Constant", Pascos 2017, 19 - 23 June 2017, Madrid, Spain.

**2017** "Probing Chirality of Top-Higgs FCNC Couplings at Linear Colliders", EPS Conference on High Energy Physics, 05 - 12 July 2017, Venice, Italy.

**2017** "Decoupling effects in the running of the Cosmological Constant", EPS Conference on High Energy Physics, 05 - 12 July 2017, Venice, Italy.

**2017** "BSM Higgs decays with quarkonium", 12th International Workshop on Heavy Quarkonium (QWG 2017), 6-10 November 2017 at Peking University in Beijing, Peking, China.

**2018** "Testing a spin-2 mediator in  $b \rightarrow s \mu \mu$  decay", Conference: Windows on the Universe, ICISE, August 5-11, 2018, Quy Nhon, Vietnam.

### **C: Other talks at international conferences**

- 1997** "Inclusive charmed baryon decays and lifetimes", talk given at the XVI Autumn School and Workshop on Fermion Masses, Mixing and CP violation, Lisbon, Portugal, October 6-15, 1997.
- 1998** "Perturbative approach to the penguin-induced  $B \rightarrow \pi \Phi$ ", talk given at the Triangle Seminar on Particle Physics, Vienna, Austria, November 27-28, 1998.
- 1999** "Perturbative approach to the penguin induced  $B \rightarrow \pi \Phi$  decay", poster, EPS-11: Trends in Physics, London, UK, September 6-10, 1999 .
- 1999** "Preasymptotic effects in b-decays", talk given at The 3rd International Conference on B Physics and CP Violation, Taipei, Taiwan, December 3-7, 1999.
- 2001** "The lifetimes of heavy hadrons - A theoretical appraisal", poster, The 4th International Conference on B Physics and CP Violation, Ise-Shima, Japan, February 19-23, 2001.
- 2006** "Exclusive B decays in QCD", talk given at Symposium QCD: Facts and Prospects, Oberwoelz, Styria, Austria, September 10-16, 2006.

### **D: Talks at foreign institutions**

- 1992** "Implications of large strangeness components in the nucleon", talk given at Institut fuer Theoretische Teilchenphysik, Universitaet Karlsruhe, Germany, October 14, 1992.
- 1993** "Relativistic Zeeman splitting in two-body atoms", talk given at Institute of Physics, University of Oslo, Norway, September 22, 1993.
- 1999** "Neutrino story", invited talk given at Institut Superieur de Technologie Luxembourg, Luxembourg, March 22, 1999.
- 2001** "BLM scale setting for the pion transition form factor", talk given at Universitaet Wuppertal, Germany, June 5, 2001.
- 2002** "Exclusive nonleptonic B decays from QCD light-cone sum rules", talk given at Institut fuer Theoretische Physik und Astrophysik, Universitaet Wuerzburg, Germany, October 24, 2002.
- 2003** "Theoretical aspects of heavy hadron lifetimes", talk given at National Taiwan University, Taipei, Taiwan, October 6, 2003.
- 2004** "Lifetimes of charmed and beauty hadrons", talk given at Universitaet Siegen, Germany, June 23, 2004.
- 2005** "Light-Cone Sum Rules in Charmless B-Decays", talk given at Ludwig-Maximilians-Universitaet Muenchen, Germany, January 12, 2005.
- 2005** "Light-Cone Sum Rules for nonleptonic B decays", talk given at Jozef Stefan Institute, Ljubljana, Slovenia, December 19, 2005.
- 2006** "Exclusive B meson decays from QCD sum rules", talk given at Universit ´e Catholique de Louvain, Louvain-la-Neuve, Belgium, June 23, 2006.
- 2008** "Exclusive charmless B-meson decays in QCD", talk given at Technion, Haifa, Israel, December 1, 2008.
- 2009** "Exclusive charmless B-meson decays in QCD", talk given at Wayne State University, Detroit, USA, November 4, 2009.
- 2010** "CP violation and the 4th generation" talk given at LPT, CNRS at University of Paris-Sud 11, Orsay, France, January 19, 2010.
- 2010** "CP violation and the 4th generation" talk given at Jozef Stefan Institute, Ljubljana, Slovenia, March 18, 2010.
- 2015** "B(s)  $\rightarrow$  eta, eta' and D(s)  $\rightarrow$  eta, eta' transitions from QCD light-cone sum rules" talk given at IFIC, University of Valencia, Spain, December 17, 2015.
- 2019** "Testing the Standard model in semileptonic Bc decays" talk given at LMU, Munich, Germany, 23 January, 2019.

### **E: Other talks**

- 2005** "Razvoj subatomske fizike" (in Croatian), invited talk at the workshop "World year of physics 2005", Croatian Academy of Science and Arts, December 9th, 2005.
- 2019** "CERN Membership as an Opportunity for Croatian Physics", pozvano predavanje, Humboldt College Zagreb, October 10-11, 2019.

