

## Curriculum Vitae for Rikard Enberg (October 2023)

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### Positions

Jan–Aug 2004  
and Jun–Aug 2005: Postdoc at Centre de Physique Théorique, École Polytechnique, France  
Sept–Nov 2004: CNRS visitor at Service de Physique Théorique, CEA/Saclay, France  
Dec 2004–Feb 2007: Postdoc in Theoretical Physics Group, Lawrence Berkeley Laboratory,  
Berkeley, CA. Financed by two-year postdoctoral fellowship  
from VR, The Swedish Research Council.  
Mar 2007–Aug 2008: Postdoc at Department of Physics, University of Arizona  
Sept 2008–Dec 2008: Visiting scientist, Lawrence Berkeley Laboratory.  
Sept 2008–Nov 2011: Assistant professor, Department of Physics and Astronomy,  
Uppsala University (tenure-track position, *Swedish: biträdande lektor*).  
Nov 2011–present: Associate professor, Department of Physics and Astronomy,  
Uppsala University (permanent position, *Swedish: universitetslektor*).  
(May 2012–Feb 2013: On parental leave, full time until Nov 2012, half time until Feb 2013)

### Degrees

- Ph.D. in Physics, June 2, 2003 from Uppsala University. Supervisor: Prof. G. Ingelman.
- Appointed Docent in Physics at Uppsala University, November 1, 2006. (*Docent* is a Swedish qualification, roughly equivalent to French and German *habilitation*)  
Docent lecture “*Extra dimensions in particle physics and cosmology*” given Oct 16, 2006

### Fellowships, grants, etc.

- 2003: PI of **Swedish Research Council** (Vetenskapsrådet) postdoctoral fellowship grant *Particle Physics Beyond the Standard Model – Theoretical Studies of New Physics in New Experiments* for research at Lawrence Berkeley Lab, USA during 2005–2006. Full salary plus research grant (**671 kSEK**).
- 2007: PI of **Swedish Research Council** grant *Theoretical particle physics beyond the Standard Model, in particular at the Large Hadron Collider*, grant no. 2007-4071, for a research associate position (*VR-forskarassistent*) at the Department of Physics and Astronomy, Uppsala University. Full salary for four years incl. all employer costs (3.3 MSEK), plus a research grant part (688 kSEK). Extended to 2013 due to parental leave during 2012. Total amount **4 MSEK**.
- 2012: Joint PI of grant from **Nordita** to organize scientific program *News in Neutrino Physics* in April 2014. PI jointly with T. Ohlsson (KTH, Stockholm). (~**500 kSEK**.)
- 2013: **Benzelius Award** (*Benzeliusbelöning*) for younger researchers in physics from the Royal Society of Sciences, Uppsala (*Kungliga Vetenskaps societeten i Uppsala*).
- 2015: CoI of **Horizon 2020 grant** from the Research Executive Agency of the EC. Node coordinator for Uppsala University of the RISE (Research and Innovation Staff Exchange) network

*NonMinimalHiggs* (MSCA grant no. 645722). The network had 5 beneficiary nodes and 5 partner nodes. Total grant **301 500 EUR**, of which for Uppsala **45 680 EUR**.

- 2017: PI of grant from the **Royal Society of Arts and Sciences of Uppsala** to finance a guest researcher in the group plus collaborative trips to Lund. Total amount **35 kSEK**.
- 2017: CoI of **Knut and Alice Wallenberg (KAW)** project *Solving the Higgs Fine-Tuning Problem with Top Partners* (SHIFT), grant no. KAW 2017.0100, with PI Sara Strandberg (Stockholm University). This project funds a postdoc in my group for four years plus a small part of my own salary and additional costs. Total grant amount for project 35.2 MSEK. “My” part of the budget is roughly **4.6 MSEK**.
- 2017: PI of **Carl Trygger Foundation** grant *Phase transitions and scalar fields in the Big Bang*. Grant no. CTS 17:139. Total amount **652 kSEK**.
- 2018: PI of grant from the **Royal Society of Arts and Sciences of Uppsala** to finance visit to Osaka University, Japan. **22 kSEK**.
- 2018: Joint PI of grant from **Nordita** to organize scientific program *Is There Still Room for Naturalness?* in 2020. Joint application with the other people in the KAW project mentioned above. The event was moved (twice) due to Covid-19 and took place in April 2022. **500 kSEK**.
- 2023: PI of grant from the **Royal Society of Arts and Sciences of Uppsala** to finance visit to CERN. **10 kSEK**.

## Teaching:

### Currently teaching:

- **Climate and physics (*Klimat och fysik för nyfikna*)**, basic level.  
One lecture about climate modeling and mathematical modeling in general. Autumn semester 2022, will return in 2023 or 2024.
- **Mechanics KF (*Mekanik KF*)**, **1FA602, 15 hp**, first cycle.  
Taught 2020-present (four times so far). Course director and lecturer, corresponding to 23% of full time. Taught in Swedish, mostly online in 2020-21 and thereafter mostly on campus. Bachelor program in physics plus physics teacher’s program, around 70 students.
- **Symmetry and Group Theory in Physics**, **1FA353, 5 hp**, master level.  
Taught 2010-2022 (13 times). Course director, main lecturer from 2013. About 14 lectures. Taught in English. Master program in physics, no. of students varies from 15 to 30.
- **Astrophysical Tests of Physical Theories**, **1FA227, 5 hp**, master level.  
Guest lecturer in even years, 2014-2022 (5 times), one lecture plus supervision of student essays. Taught in English.

### Previously taught:

- **Quantum Mechanics, Advanced Course**, **1FA352, 10 hp**, second cycle.  
Taught 2017-2019 (3 times), lectures, 11% of full time. Taught in English. Master program in physics plus Engineering physics program, around 50 students.
- **Good and Bad Science (*Bra och dålig vetenskap*)**, **5FT072, 7.5 hp**, advanced level.  
Taught 2016-2021 (6 times). One guest lecture about quantum physics. Taught in Swedish the first time and then English.

- **Advanced Particle Physics, 1FA355, 10 hp**, master level.  
Taught 2013-2018 (6 times). Course director, main lecturer, seminar supervision. 11-12 lectures and 5-10 seminars. Taught in English. Master program in physics, no. of students varied from 7 to 20.
- **Mechanics III, 1FA103, 5 hp** for Engineering Physics, first cycle.  
Taught 2013 and 2014 (2 times). Tutorial sessions with problem solving (called lessons in Uppsala), 6% of full time. Taught in Swedish. Engineering physics program, 20-25 students.
- **Astroparticle Physics, 1FA350, 5 hp**, master level.  
Guest lecturer in 2010, 3 lectures. Taught in English.
- **Standard Model and Beyond, 10 hp**, PhD student course.  
Taught once, 2010. Course director, only teacher, 12 lectures. Taught in English. PhD student course, about 10 students.
- **Mechanics II, 1FA102, 5 hp**, first cycle.  
Taught 2009, 2010, spring 2014, fall 2014 (4 times). Tutorial sessions with problem solving (called lessons in Uppsala), 6% of full time. Taught in Swedish. Two different engineering programs, 20-25 students each time.
- **Physics 371: Quantum Theory**, one-semester course, basic level.  
Taught once in 2007 at the University of Arizona in Tucson, Arizona, USA. Course director and sole teacher. 44 lectures of 50 min. Taught in English. 18 students. The examination consisted of hand-in assignments, midterm exams, and a final exam. I did all the teaching, but I had a grader for the assignments.
- **Physics 422: Theoretical Mechanics**, advanced level.  
Substitute lecturer (2007), 4 lectures, University of Arizona in Tucson, Arizona, USA. Taught in English.
- **Analytical Mechanics**, graduate (PhD student) level.  
Substitute lecturer (2007), 1 lecture, University of Arizona in Tucson, Arizona, USA. Taught in English.
- **Physics 229C: LHC & Physics Beyond The Standard Model**, graduate level.  
Guest lecturer (2006), 1 lecture, University of California, Berkeley. Taught in English.
- While a PhD student in Uppsala I taught several courses:
  - Problem solving sessions and seminars in **Quantum Physics II** for Engineering Physics. Taught four times, 1998–2001.
  - Labs in **Nuclear and Particle Physics**. Taught four times, 2000–2002.
  - Labs in **Electricity and Magnetism**. Taught four times, 1998–2000.

### Pedagogical training

- University Teacher Training course (*Pedagogisk kurs*), Uppsala University, 2009 (5 weeks)
- Scholarly Teaching in Science and Technology (*Ämnesdidaktisk kurs*), Uppsala University, 2018 (2 weeks).
- Department's course for PhD supervisors (two days).
- Student-centered teaching and learning, Dec 4, 2018 (half-day course).
- Supervision of PhD students, Uppsala University, 2020 (3 weeks).

**Supervision:****PhD theses:**

I have supervised four PhD students who have graduated with PhD degrees, two as main supervisor:

- Glenn Wouda, *Phenomenology of Higgs Bosons Beyond the Standard Model*, **main supervisor**. Thesis defense Feb. 27, 2015. [link to thesis]
- Dominik Werder, *Color Screening in QCD and Neutrinos from Singlino Dark Matter*, co-supervisor. Thesis defense Jan. 20, 2016. [link to thesis]
- Andreas Ekstedt, *Phenomenology of new neutral vector bosons and parton distributions from hadronic fluctuations*, co-supervisor. Thesis defense Sept. 30, 2019. [link to thesis]
- Johan Löfgren, *The powers of perturbation theory*, **main supervisor**. Thesis defense Dec. 11, 2020. [link to thesis]

In addition I am currently co-supervisor of Yong Sheng Koay, who started in February 2023.

**Student theses and project**

I have supervised 14 master and bachelor theses and longer projects and have been examiner for an additional five.

**Visits and guest research:**

- Visitor at Osaka University, Japan, Feb 11–23, 2019.
- Visitor at University of Toyama, Japan, Feb 23–March 7, 2017.
- Visiting scientist at the University of Arizona, 1–13 December, 2010.
- Summer visitor at Aspen Center for Physics, June 28–July 19, 2009.
- Visiting scientist at Lawrence Berkeley Laboratory, Berkeley, USA, Sept.–December 2008.
- Visitor at Université de Liège, Belgium, 4–8 July 2005.
- Guest researcher position at École Polytechnique, France, May–August 2005
- Guest researcher position at Service de Physique Théorique, CEA/Saclay, France, 1–30 Nov. 2003
- Visitor at Institute for Particle Physics Phenomenology, University of Durham, UK, 5–11 Sept. 2003.
- Visitor at Department of Physics, University of Manchester, UK, May 2002

**Refereeing and evaluation**

- Referee for the journals *Astroparticle Physics*, *Chinese Physics C*, *European Physical Journal C*, *Frontiers in High-Energy and Astroparticle Physics*, *International Journal of Modern Physics A*, *Journal of Cosmology and Astroparticle Physics (JCAP)*, *Journal of High Energy Physics (JHEP)*, *Modern Physics Letters A*, *Nuclear Physics B*, *Physical Review Letters*, *Physical Review D*, *Physics Letters B*, *Symmetry*, *Universe*.
- Grant reviews for Deutsche Forschungsgemeinschaft (DFG), Dutch Research Council (NWO), and Fonds de la Recherche Scientifique (F.R.S.-FNRS) in Belgium.
- Referee of book proposal for De Gruyter (Germany).
- Examination of PhD theses:

- Siddharth Dwiwedi, Harish-Chandra Research Institute, India, June 2018 (external examiner). Supervisor: Biswarup Mukhopadhyaya. Thesis title: *Traces of New Physics in Collider Data*. (External examiner.)
- Asli Keçeli, University of Helsinki, May 2015 (pre-examiner). Supervisor: Katri Huitu. Thesis title: *Phenomenological implications of theories beyond the Standard Model*. (Pre-examiner.)
- External examiner (“*opponent*”) of Swedish “licentiate” theses:
  - Johannes Bergström, KTH Royal Institute of Technology, Stockholm, August 26, 2011. Supervisor: Tommy Ohlsson. Thesis title: *Predictions of Effective Models in Neutrino Physics*.
  - Jelena Jovicevic, KTH, Stockholm, April 19, 2013. Supervisors: Jonas Strandberg and Bengt Lund-Jensen. Thesis title: *Probing the Standard Model Higgs boson in the WW decay mode with the ATLAS detector at the LHC*.
  - Einar Urdshals, Chalmers University of Technology, Gothenburg, February 28, 2023. Supervisor: Riccardo Catena. Thesis title: *Dark matter electron interactions in detector materials*.
- External reviewer (“*sakkunnig*”) of applications for promotion to Associate Professor:
  - Sultan Qaboos University, Oman, 2014
  - IIT Hyderabad, India, 2023
- External reviewer (“*sakkunnig*”) of *docent* applications:
  - Stockholm University, 2016
  - Lund University, 2021
- Member of the following 19 PhD thesis committees:
 

Valentina Puletti, 2009, Uppsala University. Elias Coniavitis, 2010, Uppsala University. Erik Lundström, 2010, Stockholm University. Karl-Johan Grahn, 2011, KTH Royal Institute of Technology. Camille Bélanger-Champagne, 2011, Uppsala University. Lisa Carloni, 2011, Lund University. Olle Engdegård, 2011, Uppsala University. Sofia Sivertsson, 2012, KTH Royal Institute of Technology. Matthias Danninger, 2013, Stockholm University. Johannes Bergström, 2013, KTH Royal Institute of Technology. Maja Garde Lindholm, 2015, Stockholm University. Katarina Bendtz, 2016, Stockholm University. Carla Terschlüsen, 2016, Uppsala University. Igor Buchberger, 2016, Karlstad University. Beatriz Villarroel, 2017, Uppsala University. Stella Riad, 2017, KTH Royal Institute of Technology. Samuel Flis, 2017, Stockholm University. Marcus Pernow, 2021, KTH Royal Institute of Technology. Vasile Antochi, 2022, Stockholm University.

### Scientific service

- Working member of the Royal Society of Arts and Sciences of Uppsala (KVSU).
- Elected deputy board member of the Royal Society of Arts and Sciences of Uppsala (KVSU) in 2023.
- Chairman 2012-2013 and board member 2010-2011 of the Section for particle and astroparticle physics of the Swedish Physical Society.
- Co-organizer of the Beyond the Standard Model working group, organizing the Swedish input

to the European Strategy for Particle Physics, 2018-2019.

- Involved in the Forward Physics Facility (FPF) proposal, for placing several detectors in the very forward region downstream from the ATLAS collision point at the LHC: I am coauthor of a Snowmass contribution and whitepaper on this proposal (2021 and 2022, see publications). Currently I am involved in a working group for the conceptual design report (CDR). As part of this involvement I have also moderated discussions and given an invited talk at the series of FPF workshops.
- Coauthor of the CDR for the LHeC accelerator proposal to build an electron accelerator at CERN to collide electrons with protons from the LHC (2012, see publications).

### Conference and workshop organization:

- Co-organizer of the Nordita scientific program *News in Neutrino Physics* in April 2014. Received funding from Nordita jointly with T. Ohlsson (KTH, Stockholm). (~500 kSEK.)
- Member of the Local Organization Committee of the *Third International Workshop on Prospects for Charged Higgs Discovery at Colliders* held in Uppsala, 27-30 September 2010, and the fourth workshop held in Uppsala 8-11 October 2012.
- Twice co-chair of *Partikeldagarna*, the annual meeting of the particle and astroparticle physics section of the Swedish Physical Society, held in Uppsala, 18–19 November 2010, and 30 Nov-1 Dec 2015.
- Member of the Programme Committee of *LHCP 2016, Fourth Annual Conference On Large Hadron Collider Physics*, held in Lund, 13-18 June, 2016.
- Co-chair with A. Ferrari of the *Sixth International Workshop on Prospects for Charged Higgs Discovery at Colliders* held in Uppsala, 3-6 October 2016.
- Member of International Advisory Committee of the conference *Beyond Standard Model: From Theory to Experiment* (BSM-2017), Hurghada, Egypt, September 17-21, 2017.
- Co-chair with A. Ferrari of the *Seventh International Workshop on Prospects for Charged Higgs Discovery at Colliders* held in Uppsala, 25-28 September 2018.
- Co-organizer of the Nordita scientific program *Is there still room for naturalness?*. Originally planned to be held in 2020, but then postponed to April 19-29, 2022, due to Covid-19. Received funding from Nordita. (~500 kSEK.)
- Member of advisory committee of *Spåttind 2023 – Nordic Conference on Particle Physics*.

### University administration

- Head of the division of High Energy Physics in the Department of Physics and Astronomy, from Sept. 1, 2018: Line manager with responsibility for personnel, planning, finances and budget, working conditions, salaries, performance reviews and yearly employee dialogues, etc. in the division (about 30 people).
- Elected to the department board, three periods, 2016-2018, 2019-2021, and 2022-2024.
- Member of working group in the department to reorganize the department administration, 2023.
- Chair of the search group for a new Head of Department, 2022.
- Elected member of the Electoral college (*Elektorsförsamlingen*) of the Faculty of Science and Technology of Uppsala University, three periods 2014-2016, 2017-2019 and 2020-2022.

- Elected member of the Electoral college (*Valförsamlingen*) for the University board (*konsistoriet*), 2017.
- Elected senator in the Academic Senate of Uppsala University, 2017-2020.
- Member of working group in the Faculty of Science and Technology to define rules and criteria for the promotion process of associate professors/senior lecturers to full professors (*i.e., the rules for promotion you are considering right now*), 2019.
- Member of working group in the Faculty of Science and Technology to define rules and criteria for the hiring and promotion process of assistant professors (*biträdande lektorer*), 2018
- University course on administrative and university law for heads of department (*Juridik i praktiken*), 2019.
- University leadership course aimed at managers and heads of department (*Chefsprogrammet*), 2018.
- University course on university finances for heads of department, 2018.
- Chaired the recruitment search group for departmental postdoc positions (2010-2013).

### Talks:

The last ten **invited talks** are listed below. I have given about 75 conference talks and seminars since 1999. A full list with transparencies is available from <https://rikardenberg.wordpress.com/talks/>.

- *Invited talk* at Eleventh Workshop on Non-Perturbative Quantum Chromodynamics, Institut d’Astrophysique de Paris, June 2011.
- *Invited talk* at Results and prospects of forward physics at the LHC, CERN, Feb 2013.
- *Invited plenary talk* at VLVnT 2013, the Very Large Volume Neutrino Telescope Workshop, Stockholm, August, 2013.
- *Invited talk* at The Physics Days (Fysikdagarna) 2016, Gothenburg, October 2016.
- *Invited talk* at Forward and Small-x QCD 2017, CERN, January 2017 (video presentation).
- *Invited talk* at HPNP2017, The 3rd Toyama International Workshop on Higgs as a Probe of New Physics, Toyama, Japan, March 5, 2017.
- *Invited plenary talk* at PAHEN, Perspectives in Astroparticle Physics from High Energy Neutrinos, Naples, Italy, September 25, 2017.
- *Invited plenary talk* at 4th Workshop on Particle Physics with Neutrino Telescopes PPNT19, Uppsala, Oct 9, 2019
- *Invited moderator* of discussion at 2nd Forward Physics Facility Meeting, online workshop, May 27-28, 2021.
- *Invited plenary talk* at 4th Forward Physics Facility Meeting, online workshop, Jan 31-Feb 1, 2022.

### Outreach engagement, popular science, media (*tredje uppgiften*)

#### Popular and outreach talks

- Lectures delivered five times to high-school teachers on Higgs and collider physics at events called the Inspiration Days (*Inspirationsdagarna*) organized by the National Agency for Education (*Skolverket*) and the Royal Academy of Sciences (KVA). Lectures in Halmstad 18 April

2012, Luleå 5 Nov 2012, Kristianstad 4 June 2013, Växjö 6 Nov 2013, and Jönköping 1 Dec 2016.

- Popular talk on the special theory of relativity (“*Special relativity for bicyclists*”), given several times, to the The Swedish Federation of Young Scientists (*Unga Forskare*), to high school students, and at a Department open house (2009).
- Popular lecture on LHC physics as part of a lecture series on science and knowledge with lectures by scientists, philosophers and other academics, organized by a church in Uppsala (April 2011).
- Short popular talk about the expanding universe at Relationsdagen 2012, a meeting between business, university and government in Uppsala at Uppsala Konsert & Kongress (April 2012).
- Talk to students at the Fyrissskolan high school (*gymnasium*) in Uppsala about LHC physics and dark matter, Sept. 2015.
- Talk about theoretical astroparticle physics at the Physics Days in Gothenburg, 28 Oct 2016.
- Lecture at the Royal Society of Arts and Sciences of Uppsala (in Swedish) on the topic “Are the universe and the laws of nature permanent?” (December 2018).
- Outreach webinar organized by the Department of Physics and Astronomy on *Symmetries* (June 2020).
- Talk to students at the Lundellska high school (*gymnasium*) in Uppsala about symmetries, March 2021.
- Lecture to master students at the UNESCO- and IAEA-funded institute ICTP-EAIFR in Kigali, Rwanda (the East African Institute of Fundamental Research) on “Symmetries in nature and science” (January 2022).
- Lecture about mathematical modeling and climate models in the course Climate and Physics, described in the teaching qualifications, Nov 15, 2022.

### Popular articles

- Popular science article (in Swedish) about the erroneous claims that the Large Hadron Collider at CERN would pose a danger due to the possible production of microscopic black holes. This article has been published in the magazine “*Folkvett*” (no. 2/2009).
- Popular article (in Swedish) on the topic “Are the universe and the laws of nature permanent?”, which was published in the annals of the Royal Society of Arts and Sciences of Uppsala in 2019. Based on the lecture mentioned above.
- Invited to write and currently working on the lead article for the 2023 edition of “*Kosmos*”, the yearly book of the Swedish Physical Society. The 2023 book will be on the theme of the Standard Model of particle physics and I am writing a pedagogical overview aimed at high school teachers and physicists in other fields.

### Interviews and other contributions in the media

- Answer to reader question in the leading Swedish popular science magazine *Forskning & Framsteg* about whether the laws of nature are constant or can change (“*Kan vi lita på naturlagarna?*”, no. 3/2013).



- I was interviewed for the podcast Professor Magenta for their special on symmetries in physics (2016).
- I was interviewed by the popular science magazine Forskning & Framsteg about symmetries in physics (“*Symmetrin håller oss vid liv*”, no. 6/2017).
- I was interviewed by Forskning & Framsteg and asked to comment on a new experimental limit on the electric dipole moment of the electron for the same magazine (“*Partikelfysik i litet format utmanar LHC*”, no. 1/2019).
- I was asked to recommend scientific summer reading for the summer issue of the magazine Forskning & Framsteg no. 6/2020. (I chose the book *Solvindar* (“Solar winds”) by the Swedish astronomer and author Peter Nilson.)
- I was interviewed by Forskning & Framsteg about searches for physics beyond the Standard Model. (“*Forskarna letar efter den nya fysiken*”, no. 10/2022).

## Publication list

Total number of peer-reviewed original articles: **40**

Total number of citations: **2999** (or 3555 in Google Scholar)

Average number of citations: **75**

h-index: **25** (or 27 in Google Scholar)

i10-index: **35** (or 43 in Google Scholar)

Data from **iNSPIRE HEP** as of 12 Oct 2023 ([link](#))

My most cited theory paper has 460 citations and my most cited paper overall (a proposal for a new accelerator) has 789. Other well-known papers are two theory papers with 149 and 101 citations and two white papers with 171 and 144 citations. Most of my papers (87%) have at least 10 citations or better.

## Refereed papers in international journals

Note that in particle physics it is customary to list the authors in alphabetical order.

1. *Soft Color Interactions and Diffractive Hard Scattering at the Fermilab Tevatron*  
R. Enberg, G. Ingelman and N. Timneanu  
**Phys. Rev. D** **64** (2001) **114015**, [hep-ph/0106246](#)
2. *Hard colour singlet exchange and gaps between jets at the Tevatron*  
R. Enberg, G. Ingelman and L. Motyka  
**Phys. Lett. B** **524** (2002) **273-282**, [hep-ph/0111090](#)
3. *Diffractive Higgs boson production at the Tevatron and LHC*  
R. Enberg, G. Ingelman, A. Kissavos and N. Timneanu  
**Phys. Rev. Lett.** **89** (2002) **081801**, [hep-ph/0203267](#)
4. *Diffractive heavy vector meson photoproduction from the BFKL equation*  
R. Enberg, L. Motyka and G. Poludniowski  
**Eur. Phys. J. C** **26** (2002) **219-228**, [hep-ph/0207027](#)

5. *Diffractive Higgs and prompt photons at hadron colliders*  
R. Enberg, G. Ingelman and N. Timneanu  
**Phys. Rev. D** **67** (2003) 011301, [hep-ph/0210408](#)
6. *Vector meson photoproduction from the BFKL equation. 1: Theory*  
R. Enberg, J.R. Forshaw, L. Motyka and G. Poludniowski  
**J. High Energy Phys. JHEP** **0309** (2003) 008, [hep-ph/0306232](#)
7. *Vector meson photoproduction from the BFKL equation. 2: Phenomenology*  
G.G. Poludniowski, R. Enberg, J.R. Forshaw and L. Motyka  
**J. High Energy Phys. JHEP** **0312** (2003) 002, [hep-ph/0311017](#)
8. *Hard diffraction from parton rescattering in QCD*  
S.J. Brodsky, R. Enberg, P. Hoyer and G. Ingelman  
**Phys. Rev. D** **71** (2005) 074020, [hep-ph/0409119](#)
9. *Testing the dynamics of high energy scattering using vector meson production*  
R. Enberg  
**Mod. Phys. Lett. A** **19** (2004) 2655, [hep-ph/0410073](#)
10. *The high energy asymptotics of scattering processes in QCD*  
R. Enberg, K. Golec-Biernat and S. Munier  
**Phys. Rev. D** **72** (2005) 074021, [hep-ph/0505101](#)
11. *BFKL resummation effects in  $\gamma^*\gamma^* \rightarrow \rho\rho$*   
R. Enberg, B. Pire, L. Szymanowski and S. Wallon  
**Eur. Phys. J. C** **45** (2006) 759-769, [hep-ph/0508134](#)
12. *Infrared instability from nonlinear QCD evolution*  
R. Enberg and R. Peschanski  
**Nucl. Phys. A** **767** (2006) 189, [hep-ph/0510352](#)
13. *Transversity GPD in photo- and electroproduction of two vector mesons*  
R. Enberg, B. Pire and L. Szymanowski  
**Eur. Phys. J. C** **47** (2006) 87, [hep-ph/0601138](#)
14. *Traveling waves and the renormalization group improved Balitsky-Kovchegov equation*  
R. Enberg  
**Phys. Rev. D** **75** (2007) 014012, [hep-ph/0612005](#)
15. *LHC and Dark Matter Signals of Improved Naturalness*  
R. Enberg, P. J. Fox, L. J. Hall, A. Y. Papaioannou, M. Papucci  
**J. High Energy Phys. JHEP** **0711**, 014 (2007), [arXiv:0706.0918](#)
16. *Prompt neutrino fluxes from atmospheric charm*  
R. Enberg, M. H. Reno, I. Sarcevic  
**Phys. Rev. D** **78** (2008) 043005, [arXiv:0806.0418](#)
17. *High energy neutrinos from charm in astrophysical sources*  
R. Enberg, M. H. Reno and I. Sarcevic  
**Phys. Rev. D** **79** (2009) 053006, [arXiv:0808.2807](#)

18. *Diffractive deep inelastic scattering from multiple soft gluon exchange in QCD*  
R. Pasechnik, R. Enberg, G. Ingelman  
**Phys. Lett. B** **695** (2011) 189-193, [arXiv:1004.2912](#)
19. *QCD rescattering mechanism for diffractive deep inelastic scattering*  
R. Pasechnik, R. Enberg, G. Ingelman  
**Phys. Rev. D** **82** (2010) 054036, [arXiv:1005.3399](#)
20. *Associated central exclusive production of charged Higgs bosons*  
R. Enberg and R. Pasechnik  
**Phys. Rev. D** **83** (2011) 095020, [arXiv:1104.0889](#)
21. *Enhancement of associated  $H^\pm W^\mp$  production in the NMSSM*  
R. Enberg, R. Pasechnik, O. Stål  
**Phys. Rev. D** **85** (2012) 075016, [arXiv:1112.4699](#)
22. *A Large Hadron Electron Collider at CERN: Report on the Physics and Design Concepts for Machine and Detector (LHeC Conceptual Design Report)*  
The LHeC Study Group, J. Abelleira Fernandez, et al.  
**J. Phys. G** **39** (2012) 075001, [arXiv:1206.2913](#)
23. *Higgs properties in a broken Inert Doublet Model*  
R. Enberg, J. Rathsman and G. Wouda  
**J. High Energy Phys. JHEP** **1308** (2013) 079, [arXiv:1304.1714](#)  
[Erratum-ibid. **1501** (2015) 087]
24. *Higgs phenomenology in the Stealth Doublet Model*  
R. Enberg, J. Rathsman, G. Wouda  
**Phys. Rev. D** **91**, 095002 (2015), [arXiv:1311.4367](#)
25. *Charm decay in slow-jet supernovae as the origin of the IceCube ultra-high energy neutrino events*  
A. Bhattacharya, R. Enberg, M. H. Reno, I. Sarcevic  
**J. Cosmol. Astropart. Phys. JCAP** **06** (2015) 034, [arXiv:1407.2985](#)
26. *Charged Higgs boson in the  $W^\pm$  Higgs channel at the Large Hadron Collider*  
R. Enberg, W. Klemm, S. Moretti, S. Munir, G. Wouda  
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## Unpublished reports

42. *Prospects for higgsino-singlino dark matter detection at IceCube and PINGU*

R. Enberg, S. Munir, C. Pérez de los Heros, D. Werder

[arXiv:1506.05714](https://arxiv.org/abs/1506.05714)

This paper was intended for publication, but during the review process new constraints on dark matter properties were published, and for various reasons (personnel related) we never had the possibility to update the parameter scans, so the paper was abandoned. The community still finds value in it, since it has 17 citations even though it is not published.

43. *Hard color singlet BFKL exchange and gaps between jets at the LHC*

A. Ekstedt, R. Enberg and G. Ingelman

[arXiv:1703.10919](https://arxiv.org/abs/1703.10919).

This paper was not intended for publication, but is a preliminary report for the benefit of the CMS collaboration on our predictions for gaps between jets at the LHC, a follow-up to the early paper [2].

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**J. Phys. G. 26 (2000) 712**, hep-ph/0001016.

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