

Timon Mede

Curriculum vitae

Jožef Stefan Institute,
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Slovenia
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Personal information

date of birth 3 November 1983
place of birth Postojna, Slovenia
citizenship Slovene (EU)

Education

2009–2013 **Ph.D.**, *Faculty of Mathematics and Physics, University of Ljubljana*, Ljubljana, Slovenia, Group for theoretical physics of nuclei, elementary particles and fields.
Title: *Spontaneous breaking of gauge symmetry and supersymmetry in perturbative Grand Unified Theories*, Supervisor: Prof. Dr. Borut Bajc, Expected finish date: summer 2013
2002–2009 **B.Sc.**, *Faculty of Mathematics and Physics, University of Ljubljana*, Ljubljana, Slovenia.
Diploma Title: *Effective potential method in supersymmetry*, Supervisor: Prof. Dr. Borut Bajc

Doctoral Thesis

title *Spontaneous breaking of gauge symmetry and supersymmetry in perturbative Grand Unified Theories*
supervisor Prof. Dr. Borut Bajc
expected defense date summer 2013
description I studied the possibility of simultaneous gauge and supersymmetry breaking induced by radiative corrections, à la Coleman-Weinberg. The main result is that a local supersymmetry-breaking minimum can be induced at the 1-loop level in the effective potential of a gauge non-singlet field. This mechanism was then illustrated with an explicit example based on a non-renormalizable SU(5) model with a single adjoint (minimal content). An interesting feature of this scenario is that it allows for a larger colour Higgs triplet mass, thus increasing the proton lifetime. In the second part of my thesis I am exploring the parameter space where the supergravity mediated minimal SU(5) scenario is still feasible (up to neutrino masses) in the light of the new experimental constraints from the LHC.

Work Experience

Vocational

2009–2013 **Research assistant (junior researcher)**, *Jožef Stefan Institute*, Ljubljana, Slovenia.
Member of the *Theoretical Physics department*, Group for theoretical physics of nuclei, elementary particles and fields

Teaching

2010–2013 **Teaching assistant**, *Faculty of Chemistry and Chemical Technology, University of Ljubljana*, Ljubljana, Slovenia.
Courses *Physics 1, 2* for junior students in Chemical Engineering

Languages

English	Proficient	<i>speaking, reading and writing</i>
Russian	Intermediate	<i>speaking and reading</i>
German	Intermediate	<i>speaking and reading</i>
Serbian, Croatian	Intermediate	<i>speaking and reading</i>
Spanish	Basic	<i>speaking and reading</i>
Slovenian	Mother tongue	<i>native speaker</i>

Computer skills

operating systems	Mac OS X, Windows
scientific	Mathematica
other	L ^A T _E X, office suites

Awards and Honours

Zois Scholarship 1998–2008	Slovene national fellowship awarded to exceptional students
2002	Golden Graduate

Field of Research: Elementary Particle Physics

Supersymmetric Grand Unified models
Beyond the Standard Model phenomenology

Schools, Conferences, Workshops, ...

19 Oct 2012 **8. konferenca fizikov v osnovnih raziskavah**, *Rimske toplice, Slovenia*.
Poster: *Supersymmetry breaking induced by radiative corrections*

- 28 May - 1 Jun 2012 **International School on Quantum Field Theory in High Energy Physics**, Ljubljana, Slovenia.
- 16 - 24 Jan 2012 **School on Strongly Coupled Physics Beyond the Standard Model**, Trieste, Italy.
- 6 - 17 Jun 2011 **Summer School on Particle Physics**, Trieste, Italy.
- 11 - 14 Apr 2011 **The Role of Heavy Fermions in Fundamental Physics**, Portorož, Slovenia.
- 27 Feb - 6 Mar 2010 **48. Internationale Universitätswochen für Theoretische Physik, Masses and constants**, Schladming, Austria.

Publications

- [1] B. Bajc, S. Lavignac and T. Mede, "Supersymmetry Breaking Induced by Radiative Corrections," JHEP **1207** (2012) 185 [arXiv:1202.2845 [hep-ph]]
- [2] *work in progress* (estimated time of release: Mar 2013)

References

Prof. Dr. Borut Bajc, Department of Physics, Faculty of Mathematics and Physics, University of Ljubljana and Jožef Stefan Institute, 1000 Ljubljana, Slovenia.

email: borut.bajc@ijs.si

Prof. Dr. Stéphane Lavignac, Institut de Physique Théorique, Laboratoire de la Direction des Sciences de la Matière du Commissariat à l'Energie Atomique et Unité de Recherche associée au CNRS (URA 2306), CEA-Saclay, F-91191 Gif-sur-Yvette Cedex, France.

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Prof. Dr. Svjetlana Fajfer, Department of Physics, Faculty of Mathematics and Physics, University of Ljubljana and Jožef Stefan Institute, 1000 Ljubljana, Slovenia.

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