

Battisti Marco Valerio

Position: PhD Student

Period covered: 2005-present



I Scientific Work:

Aspects of Quantum Cosmology

II Conferences and educational activities:

Invited scientific collaborations:

-October 2008 Rudjer Boskovic Institute of Zagreb,
Theoretical and Mathematical Physics group directed by Prof. S.Meljanac

Meetings, workshops and PhD schools:

-September 2008 Quantum Spacetime and Noncommutative Geometry,
-July 2008 The 3rd Stueckelberg Workshop,
-June 2008 NEB-XIII Recent Developments in Gravity,
-September 2007 The 2nd Stueckelberg Workshop,
-July 2007 4th Italian-Sino Workshop on Relativistic Astrophysics,
-March 2007 Noncommutative Spacetime Geometries,
-December 2006 High Energy, Cosmology and Strings,
-September 2006 XII Brazilian School of Cosmology and Gravitation,
-July 2006 XI Marcel Grossmann Meeting on General Relativity,
-June 2006 The 1st Stueckelberg Workshop,
-June 2006 Planck scale in Astrophysics and Cosmology,
-February 2006 1st Bego Rencontre,
-January 2006 Mathematical aspects of GR,

- June 2005 The Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics,
- June 2005 2nd Italian-Sino Workshop on Relativistic Astrophysics,

Given talks and seminars:

- October 2008 Invited talk at the Rudjer Boskovic Institute, Zagreb.

Title of talk:

Quantum Cosmology and Minimal Length

- July 2008 ``The 3rd Stueckelberg Workshop'', (main lectures by Prof. G.'t Hooft)
Pescara, 8-18 July.

Title of talks:

- 1) *Time evolution in a generic quantum Universe*
- 2) *Quantum cosmology in the GUP approach*
- 3) *Extended approach to the canonical quantization in the minisuperspace*

- June 2008 ``NEB-XIII Recent Developments in Gravity'', (plenary speakers Prof.
A.Ashtekar, Prof. R.Loll and Prof. G.Ellis), Thessaloniki, 4-6 June.

Title of talk:

Phenomenological framework for loop and braneworlds cosmologies

- January 2008 ``ICRA seminars on Quantum Gravity'', Rome.

Title of seminar:

GNS construction and the polymer representation

- September 2007 ``The 2nd Stueckelberg Workshop'', (main lectures by Prof. T.Thiemann)
Pescara, 3-8 September.

Title of talks:

- 1) *Quantum cosmology in a generalized uncertainty principle framework*
- 2) *Cosmological implications of an evolutionary quantum gravity*

-July 2007
July.

``4th Italian-Sino Workshop on Relativistic Astrophysics'', Pescara, 20-30

Title of talk:

Minisuperspace dynamics in a generalized uncertainty principle framework

-June 2007

``ICRA seminars on Quantum Gravity'', Rome.

Title of seminar:

Mixmaster dynamics from the Loop Quantum Cosmology point of view

-July 2006

``Eleventh Marcel Grossmann Meeting on General Relativity'', Berlin, 23-29
July.

Title of talk:

Generic evolutionary quantum universe

-June 2006
Pescara,

``The 1st Stueckelberg meeting'', (main lectures by Prof. A.Ashtekar)
26-30 June.

Title of talk:

Generic evolutionary quantum cosmology

-June 2006
G.Amelino-

``Planck scale in Astrophysics and Cosmology'', (organized by Dr.
Camelia and Dr. A.Melchiorri) Rome, 19-20 June.

Title of talk:

Is minisuperspace arena for GUP approach?

-May 2006

``ICRA seminars on Quantum Gravity'', Rome.

Title of seminar:

The framework of Loop Quantum Cosmology

-April 2006

``ICRA seminars on Quantum Gravity'', Rome.

Title of seminar:

Generalized uncertainty principle and noncommutative spacetime

III Work With Students

Diploma thesis supervision

-2007: Assigned as tutor to the undergraduate student Riccardo Belvedere for his degree thesis at University of Rome "La Sapienza": "On the semiclassical limit of a quantum Universe"

IV 2007-2008 List of Publications

G.Montani, M.V.Battisti, R.Benini and G.Imponente, *Primordial Cosmology*, World Scientific (2009), in preparation.

G.Montani, M.V.Battisti, R.Benini and G.Imponente, *Classical and quantum features of the Mixmaster singularity*, Int.J.Mod.Phys.A 23 (2008) 2353-2503, [arXiv:0712.3008].

11) R.Belvedere, M.V.Battisti and G.Montani, *Semi-classical isotropization mechanism for a generic Universe*, submitted to Phys.Rev.D.

10) M.V.Battisti and G.Montani, *The Mixmaster Universe in a generalized uncertainty principle framework*, submitted to Phys.Rev.D, [arXiv:0808.0831].

9) M.V.Battisti, O.M.Lecian and G.Montani, *Polymer quantum dynamics of the Taub Universe*, to appear on Phys.Rev.D, [arXiv:0806.0768].

8) M.V.Battisti, *Loop and braneworlds cosmologies from a deformed Heisenberg algebra*, submitted to Phys.Rev.D, [arXiv:0805.1178].

7) M.V.Battisti and G.Montani, *Quantum cosmology with a minimal length*, Int.J.Mod.Phys.A 23 (2008) 1257-1265, [arXiv:0802.0688].

6) M.V.Battisti and G.Montani, *Cosmological implications of an evolutionary quantum gravity*, Int.J.Mod.Phys.A 23 (2008) 1235-1239, [arXiv:0801.4690].

5) M.V.Battisti and G.Montani, *Minisuperspace dynamics in a generalized uncertainty principle framework*, AIP Conf. Proc. 966 (2007) 219-226, [arXiv:0709.4610].

4) M.V.Battisti and G.Montani, *Quantum dynamics of the Taub Universe in a generalized uncertainty principle framework*, Phys.Rev.D 77 (2008) 023518, [arXiv:0707.2726].

3) M.V.Battisti and G.Montani, *The big-bang singularity in the framework of a generalized uncertainty principle*, Phys.Lett.B 656 (2007) 96-101, [gr-qc/0703025].

2) M.V.Battisti and G.Montani, *Evolutionary quantization of cosmological models*, Nuovo Cim.B 122 (2007) 179-184, [gr-qc/0701095].