

Cianfrani Francesco

Position: Research Fellowship

Period covered: 2009



I Scientific Work

Hamiltonian analysis of the Holst formulation in a generic local Lorentz frame;

Extended phase space approaches in Quantum Gravity;

Geometrization of gauge interactions in a multi-dimensional space-time.

II Conferences and educational activities

Conferences and Other External Scientific Work:

XIIth Marcel Grossmann Meeting, Paris, July 12-18.

Other Teaching Duties:

lectures for the undergraduate course "Fisica Generale" by Prof. S. Rahatlou at the department of biology, University of Rome "Sapienza".

2009 List of Publications

F. Cianfrani, G. Montani, "Matter in Loop Quantum Gravity without time gauge: a non-minimally coupled scalar field", *Physical Review D*, in press, arXiv:0904.4435.

F. Cianfrani, G. Montani, "The Immirzi parameter from an external scalar field", *Physical Review D*, **80**, (2009) 084040, arXiv:0907.1530.

F. Cianfrani, G. Montani, S. Zonetti "Definition of a time variable with Entropy of a perfect fluid in Canonical Quantum Gravity", *Classical and Quantum Gravity*, **26**, 125002, (2009), arXiv:0807.3281.

F. Cianfrani, G. Montani, "Towards Loop Quantum Gravity without the time gauge", *Physical Review Letters*, **102**, (2009) 091301, arXiv:0811.1916.