

Short visit grant

Travel details

This concerns the travel of P. Zinn-Justin from 09/03/05 to 12/03/05 to visit Jean-Bernard Zuber (zuber@lpthe.jussieu.fr) at Laboratoire de Physique Théorique et Hautes Energies (LPTHE Tour 24, Université Paris 6, 75231 Paris Cedex 05). This application concerns possible (partial or total) reimbursement of the airplane travel costs which amount to 624.36 euros.

Project work

The aim of this visit is to continue an ongoing collaboration concerning combinatorial properties of integrable loop models and related integrable stochastic processes. Recently, in a series of papers [27,30] P. Di Francesco, P. Zinn-Justin and J.-B. Zuber managed to compute certain numbers of fully packed loop configurations and checked that they are the components of the corresponding integrable Markov process of non-crossing loops, which is a special case of the so-called Razumov–Stroganov conjecture. We are now trying to extend this work. First, we are looking for generalizations of these ideas to a Markov process of crossing loops first introduced by de Gier and Nienhuis. It is not entirely clear at the moment what the diagrams playing the role of fully packed loops are in the crossing case, although by now we have some understanding in special cases. On the other hand the model of crossing loops suggests some deep connection with algebraic geometry and more specifically to equivariant cohomology of certain affine schemes. It seems a further extension is needed – perhaps K -theory, or quantum cohomology – to adapt these ideas to the non-crossing case and thereby prove the elusive Razumov–Stroganov conjecture, which is our primary goal in this field.
