

University of Southampton

Wynn Ho
Mathematical Sciences
University of Southampton
Southampton, SO17 1BJ, United Kingdom

Tel: +44 2380 593685
Fax: +44 2380 595147
wynn.ho@soton.ac.uk

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Dear Compstar Steering Committee:

Please find below the report of my STSM (ref: COST-STSM-ECOST-STSM-MP1304-160614-042703) to the host institution of INFN Sezione di Catania on the dates 9 June 2014 to 13 June 2014.

The purpose of the STSM is to collaborate with the experts at Catania in the areas of nuclear equations of state and nucleon superfluidity and superconductivity.

I gave a seminar on the first day and spent much of the remaining several days in discussions with Marcello Baldo, Alfio Bonanno, Fiorella Burgio, and Hans-Josef Schulze, as well as PhD student Gabriele Taranto and visitors Tom Rijken and Vadim Urpin. Particular topics of discussion included calculations of nuclear equations of state and effective mass, superfluid and superconducting gap energies, magnetic field evolution in stars and neutron stars, and observational constraints on these properties and processes.

The main results I obtained are several tables of equation of state data, advice on superfluid and superconducting gap energy models, and interesting possible explanations of observational properties of pulsars. All of these I will use in the next several months to test against neutron star data that I am examining.

I plan to continue to collaborate with the aforementioned people in examining further observational implications for their models. These could lead to several publications, e.g., one on neutron star cooling predictions using the various equations of state provided and one on explaining the unusual pulse profiles of several pulsars; Catania people will either serve as coauthors or will be acknowledged experts who have been consulted on these works.

Thank you for your attention and support of my STSM.

Wynn Ho