

CURRICULUM VITÆ ET STUDIORUM

Dario Maschietti

Personal Data

Name: **Dario Maschietti**
Data of birth: May 16, 1982
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Foreign languages: English.

Actual Position

27 June - 5 July 2008 I attended the “*2nd Course: FRONTIERS IN NUMERICAL GRAVITATIONAL ASTROPHYSICS*” (**International school on Astrophysical Relativity**) in Erice (Sicily).
Oct. 2005 - July 2006 I worked in the Experimental Cosmology Group “G31” laboratory under the supervision of Prof. Paolo de Bernardis on the realization of the superinsulation of the OLIMPO’s cryostat.
Gen. - Dec. 2002 Contract for student assistantship at the Physics Department of the University of Rome “La Sapienza”.

Education

Sept. 2006- 26 Feb. 2009 **Master Degree in Astronomy and Astrophysics** at the University of Roma “*Sapienza*”. Grading: 110/110.
Thesis’ title:
REGULARIZATION OF CLOSE INTERACTIONS IN A TREE-CODE FOR N -BODY SIMULATIONS.
Supervisor: Prof. Roberto Capuzzo-Dolcetta.
An english version is available on request:
astrowww.phys.uniroma1.it/astro/maschietti/MSthesis.pdf

Sept. 2001- 24 Feb. 2006 Degree in Physics and Astrophysics at the University of Rome "La Sapienza". Grading: 102/110.

Thesis' title:

REGULARIZATION OF THE FEW BODY GRAVITATIONAL PROBLEM.

Supervisor: Prof. Roberto Capuzzo-Dolcetta.

Sept. 1996 - July 2001 High school certificate at the School "Lazzaro Spallanzani" - TIVOLI (RM), with marks 72/100.

Computer science knowledge

Operating systems:	UNIX, Linux, Mac OS X and Windows;
Word processor:	L ^A T _E X and MS Word;
Spreadsheet:	MS Excel;
Programming language:	Fortran, C and C++;
Scripting language:	Bash;
Other:	OpenMP, CUDA, HTML standard, Qt, Gnuplot, Octave.

Research Interests

During the bachelor period, I focused my attention to stellar dynamics. In particular, I developed computer applications and the use of numerical methods for the integration of the equations of motion of self-gravitating N -body stellar systems.

During the training period, before the bachelor's thesis work, I pointed my attention to the study of different integration algorithms.

In the dissertation thesis, I verified the efficiency and reliability of the "*chain regularization method*" (Mikkola & Aarseth, 1993), in particular, in the case, when one of the bodies is much heavier than the others (this is the case of a black hole interacting with two stars). We checked quantitatively that this method guarantees a good integration in the strong interactions of the N -body system (with small N) and keeps its efficiency also in the case of high mass ratios.

During the preparation of the MS thesis, I worked on the "*treeATD-code*" (Capuzzo-Dolcetta & Mocchi, 2002), that is an implementation of the tree-code (Barnes & Hut, 1986) which makes use of a regularization method (called "*chain regularization method*").

I am presently working under the supervision of Roberto Capuzzo-Dolcetta on the realization of a new code for dealing self-gravitating N -body stellar systems. We are realizing a "hybrid" (double-parallel) code for integrating an N -body system using CUDA and OpenMP library.

Tivoli, March 27, 2009

on trust
Dario Maschietti