



# UNIVERSITÀ DEGLI STUDI DI TORINO

## I@UNITO – Visiting Scientists

Scientific area	Scientific responsible	Host Department	Type of activity	Start of mobility	Language
2	Antonaldo Diaferio	Physics	Research	May 1st, 2017	English
Type of fellowship	Junior (less than 40 years old) 3 months fellowship				
Title of the research project	Unveiling the nature of dark matter and dark energy with the internal dynamics of clusters of galaxies				
Description of the research project	We will develop a novel technique to identify the substructures in the distribution of galaxies in the central region of galaxy clusters from optical spectroscopic information. For the first time, we will combine this information with the X-ray spectroscopy of different regions of the hot gas within the cluster obtained with the X-ray space telescope <i>Chandra</i> . This unprecedented comparison we will enable us to constrain the mass accretion history of galaxy clusters and provide a new test of the cosmic structure formation models based on gravitational instability.				
Profile Description	The visiting scientist is required to be competent in the X-ray and optical extragalactic astronomy, have a proved skill in software development, and be familiar with the theoretical and numerical modelling of cosmic structure formation.				
Research objectives	The research project will provide a novel and unique tool to test the currently standard cosmological model based on the dynamically dominant role of dark matter and dark energy. We will probe a cosmological process currently unexplored in astrophysical observations: the mass accretion history of galaxy clusters. Our analysis will also provide constraints on theories of gravity beyond General Relativity.				
Website and Contact	<a href="http://www.dfg.unito.it/ricerca/caustic/">http://www.dfg.unito.it/ricerca/caustic/</a> <a href="mailto:antonaldo.diaferio@unito.it">antonaldo.diaferio@unito.it</a> telephone: +39-011-6707458				