Maria A. Tiongco

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RESEARCH INTERESTS

- Stellar dynamics
- Dynamical evolution of globular clusters
- N-body simulations
- Internal kinematics of stellar systems

EDUCATION

Indiana University, Bloomington *2018*
Ph.D., Astronomy
Title: *Kinematical Evolution of Tidally Limited Star Clusters*
Advisor: Enrico Vesperini
Minor: Scientific Computing

University of Michigan, Ann Arbor *2010*
B.S., Astronomy & Astrophysics
B.S., Interdisciplinary Physics

POSITIONS

Postdoctoral Associate August 2019–Present
Unversity of Colorado

Postdoctoral Fellow August 2018–May 2019
Indiana University

IU President's Diversity Dissertation Fellow 2017–2018
Indiana University

HONORS AND AWARDS

Galaxies Journal Travel Award	2019
Hollis and Grete Johnson Research Prize	2018
AAS Rodger Doxsey Travel Prize Honorable Mention	2017
IU President's Diversity Dissertation Fellowship	2017
Joseph & Frances Morgan Swain Graduate Fellowship	2016
AAS Division on Dynamical Astronomy Raynor L. Duncombe Prize	2016
IU College of Arts and Sciences Matias L. Ochoada Fellowship	2016
AAS International Travel Grant	2015, 2016
IU College of Arts and Sciences Travel Award	2013, 2017
IU Provost Travel Award for Women in Science	2013, 2015–2018

RESEARCH EXPERIENCE

Indiana University 2012–2018
Research Assistant, Advisor: Enrico Vesperini

University of Chicago 2009
REU Student, Advisor: Stephan Meyer

University of Michigan 2008
Research Assistant, Advisor: John Monnier

Baylor University 2008
REU Student, Advisor: Dwight Russell

TELESCOPE TIME AWARDED

Harlan J. Smith 2.7m Telescope (21 hours) 2017
Co-I, PI: Maximilian Fabricius *McDonald Observatory*

· Proposal Title: "Maximum Rotational Velocity of Milky Way Globular Clusters"
· Using the VIRUS-W Integral Field Unit Spectrograph to locate the peak of the internal rotational velocity profile of a few bright northern globular clusters

Very Large Telescope (2 hours) 2019
Co-I, PI: Emanuele Dalessandro *European Southern Observatory*

· Proposal Title: "A rapidly rotating core in the low mass globular cluster NGC6362?"
· Using the MUSE Integral Field Unit Spectrograph to obtain the rotational velocity of the central regions of the globular cluster NGC6362

TEACHING EXPERIENCE

Indiana University 2013
Instructor

· Astronomy 100 - The Solar System
· Introductory astronomy course for non-science majors. Topics covered: the celestial sphere, seasons, moon phases, eclipses, history of astronomy, gravity, telescopes, properties of light and atoms, theory of solar system formation, the Solar System and its constituents: Sun, planets, moons, asteroids, and comets.

Indiana University 2012–2015
Associate Instructor

· Astronomy 103 - Search for Life in the Universe
· Astronomy 105 - Stars and Galaxies
· Astronomy 451 - Stellar Astrophysics
· Astronomy 450 - Galactic Astrophysics
· Responsibilities included guest lecturing, holding office hours, grading, running rooftop and solar lab observing sessions

PROFESSIONAL TALKS AND POSTERS

International Astronomical Union (IAU) Symposium 351 - "Star Clusters: from the Milky Way to the Early Universe" & MODEST-19 (see below) May 2019
University of Bologna *Bologna, Italy*

· Contributed Talk: "Kinematical Evolution of Globular Clusters"

Science With Precision Astrometry Workshop March 2018
Space Telescope Science Institute *Baltimore, MD*

· Contributed Talk: "Evolution of the Internal Kinematics of Globular Clusters"

231st American Astronomical Society Meeting January 2018
Washington, DC

· Dissertation Oral Presentation: "Effects of Dynamical Evolution on Globular Clusters Internal Kinematics"

MODEST-17 (Modelling and Observing Dense Stellar Systems) September 2017
Charles University *Prague, Czech Republic*

· Contributed Talk: "Dynamical evolution of tidally limited rotating star clusters"

The exciting lives of galactic nuclei March 2017
Max Planck Institute for Astronomy *Tegernsee, Germany*

· Invited Talk: "Kinematics of multiple stellar population clusters (and their tantalizing cores)"

AAS Division on Dynamical Astronomy 2016 Meeting May 2016
Vanderbilt University *Nashville, TN*

· Duncombe Prize Talk: "Effects of dynamical evolution on the internal kinematical properties of star clusters"

Star Clusters as Cosmic Laboratories for Astrophysics, Dynamics and Fundamental Physics/MODEST-16 April 2016
University of Bologna *Bologna, Italy*

· Contributed Talk: "Dynamical evolutionary effects on star cluster kinematics"

MODEST-15 (Modelling and Observing Dense Stellar Systems) March 2015
University of Concepción *Concepción, Chile*

· Poster Presentation: "Lifetimes and kinematics of rotating star clusters in a tidal field"

222nd American Astronomical Society Meeting June 2013
Indianapolis, IN

· Poster Presentation: "Early Evolution of Rotating Star Clusters - Homogeneous Initial Conditions"

PUBLIC OUTREACH

- **Public observing nights at Kirkwood Observatory at IU:** showing the public astronomical objects through the 12-inch diameter Kirkwood refractor telescope
- **Science Fest/Physics and Astronomy Open House at IU:** running astronomy-related demos/activities for the public
- **Indiana Science Olympiad Astronomy Division:** drafting, proctoring, and grading exams
- **Founding writer and editor** for *ScIU: Conversations in Science @ Indiana University*, a science blog written for undergraduates at IU (`http://www.blogs.iu.edu/sciu`)

PROFESSIONAL SERVICES

- **Session chair** for MODEST-17 Meeting
- **Referee** for Monthly Notices of the Royal Astronomical Society

WORKSHOPS

International Gaia School November 2013
National Autonomous University of Mexico *Mexico City, Mexico*

- School Title: "Galactic Dynamics in the Times of Gaia and other Great Surveys"

TECHNICAL SKILLS

Astronomy & Astrophysics Codes	NBODY6, REBOUND, Starlab, GADGET-2
Analysis Software	R, MATLAB, Mathematica, IDL
Programming Languages	Fortran, Python
Other Tools	LaTeX, Linux/Unix Shell Scripting, Markdown, HTML

REFEREED PUBLICATIONS

8. **M. Tiongco**, E. Vesperini, and A. L. Varri, *Kinematical evolution of multiple stellar populations in star clusters*, 2019, MNRAS, 487, 5535

7. B. Lanzoni, F. R. Ferraro, A. Mucciarelli, C. Pallanca, **M. Tiongco**, and 9 co-authors, *The ESO Multi-Instrument Kinematic Survey (MIKiS) of Galactic Globular Clusters: solid body rotation and anomalous velocity dispersion profile in NGC 5986* 2018, ApJ, 865, 11

6. B. Lanzoni, F. R. Ferraro, A. Mucciarelli, **and 10 co-authors**, *The strong rotation of M5 (NGC 5904) as seen from the MIKiS Survey of Galactic Globular Clusters* 2018, ApJ, 861, 16

5. **M. Tiongco**, E. Vesperini, and A. L. Varri, *The complex kinematics of rotating star clusters in a tidal field*, 2018, MNRAS 475, L86

4. **M. Tiongco**, E. Vesperini, and A. L. Varri, *Kinematical evolution of tidally limited star clusters: rotational properties*, 2017, MNRAS, 469, 683

3. O. Boberg, E. Vesperini, E. Friel, **M. Tiongco**, and A. L. Varri, *Internal Rotation in the Globular Cluster M53*, 2017, ApJ, 814, 114

2. **M. Tiongco**, E. Vesperini, and A. L. Varri, *Kinematical evolution of tidally limited star clusters: the role of retrograde stellar orbits*, 2016, MNRAS, 461, 402

1. **M. Tiongco**, E. Vesperini, and A. L. Varri, *Velocity anisotropy in tidally limited star clusters*, 2016, MNRAS, 455, 3693