



# PHYSICS COLLOQUIUM:

## Weaving the Milky Way Tapestry

**Ana Bonaca**  
Staff Member, Observatories  
Carnegie Institution of Science

### Date:

2/18/2022

### Time:

10:30 AM - 11:50 AM

### Location:

Please contact  
[snsgradstaff@ucmerced.edu](mailto:snsgradstaff@ucmerced.edu) for  
the Zoom information.

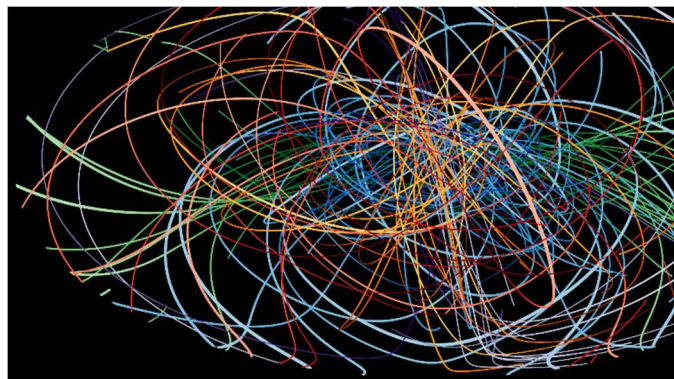
### **About The Speaker:**

Ana Bonaca is a Staff Member at Carnegie Observatories. Her specialty is stellar dynamics and her research aims to uncover the structure and evolution of our galaxy, the Milky Way, especially the dark matter halo that surrounds it. In her research, she uses space- and ground-based telescopes to measure the motions of stars, and constructs numerical experiments to discover how dark matter affected them.

Bonaca received a M.S. in physics from University of Zagreb, Croatia (2010) and a Ph.D. in astronomy from Yale University (2016). She was a Fellow at the Institute for Theory and Computation, hosted by the Center for Astrophysics | Harvard & Smithsonian before moving to Carnegie as a Staff Scientist in 2021. She has gleaned from precise orbital histories of stars in the Milky Way halo, and what they imply for the intertwined quests to understand the physics of galaxy formation and the nature of dark matter.

### **Abstract:**

Explorations of our galaxy, the Milky Way, are currently undergoing a revolution. Spearheaded by Gaia, large missions are measuring the motions, chemical compositions, and ages of stars more precisely and farther than ever before. Using these data, for the first time we have been able to unambiguously isolate stars born in smaller galaxies that have been assimilated by the Milky Way throughout its history. Yet open questions abound following this milestone achievement: "How are the different progenitors of the Milky Way related?" "How has their arrival impacted the stars and dark matter already in the Milky Way?" I will discuss how the answers to these questions can be gleaned from precise orbital histories of stars in the Milky Way halo, and what they imply for the intertwined quests to understand the physics of galaxy formation and the nature of dark matter.



For more information, contact : Anna Nierenberg  
[anierenberg@ucmerced.edu](mailto:anierenberg@ucmerced.edu)