



PHYSICS COLLOQUIUM: Seeing Orbits and Seeing the Dark Matter

Date:
10/2/2020

Time:
10:30 AM-11:50 AM

Link:
Please email
snsgradstaff@ucmerced.edu
for Zoom link and passcode

David W. Hogg

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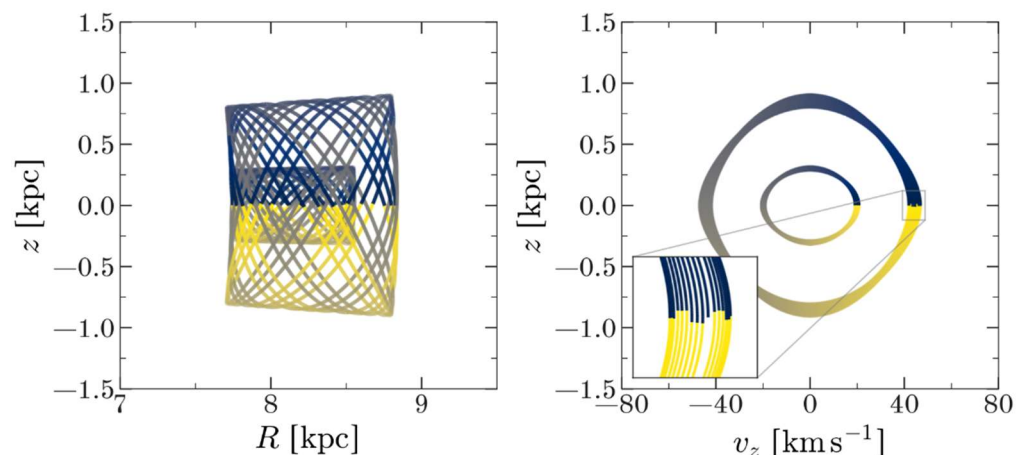


About The Speaker:

David W Hogg is a professor of physics and data science at New York University. He is also a group leader at the Center for Computational Astrophysics at the Flatiron Institute. He works on data analysis, precision measurement, and discovery in astrophysics at all scales from extra-solar planets to large-scale structure in the Universe.

Abstract:

When physicists in the 16th and 17th centuries worked out the law of gravity in the Solar System, they did so by observing planetary orbits and finding the force law that was explanatory of those orbit shapes. In the Milky Way and other galaxies, we don't get to see the stars orbit, we just see their (effectively) instantaneous positions and velocities. In this context, how do we figure out the force law and mass distribution (including the distribution of dark matter) in our Galaxy? The answer is that we have to make strong assumptions. I discuss these assumptions and some of the methods that flow from them. I will also show off a brand-new method for mapping out the orbit shapes in the Milky Way based on measured element-abundance ratios in the stars.



For more information, contact : Sarah Loebman
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