Disks in Nearby Young Stellar Associations Found Via Citizen Science and Virtual Reality

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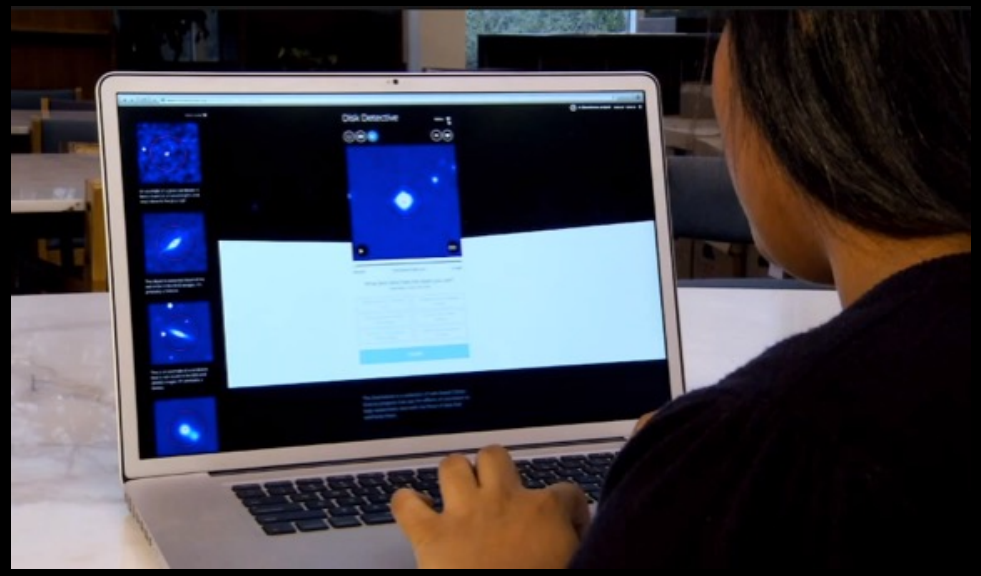
Planets form in disks of dust, rocks, and sometimes gas around nearby stars.
We need a sample of nearby disks at different ages to study how they evolve.



Volunteers working on the
Disk Detective Citizen Science Project
found more than 40,000 of them!

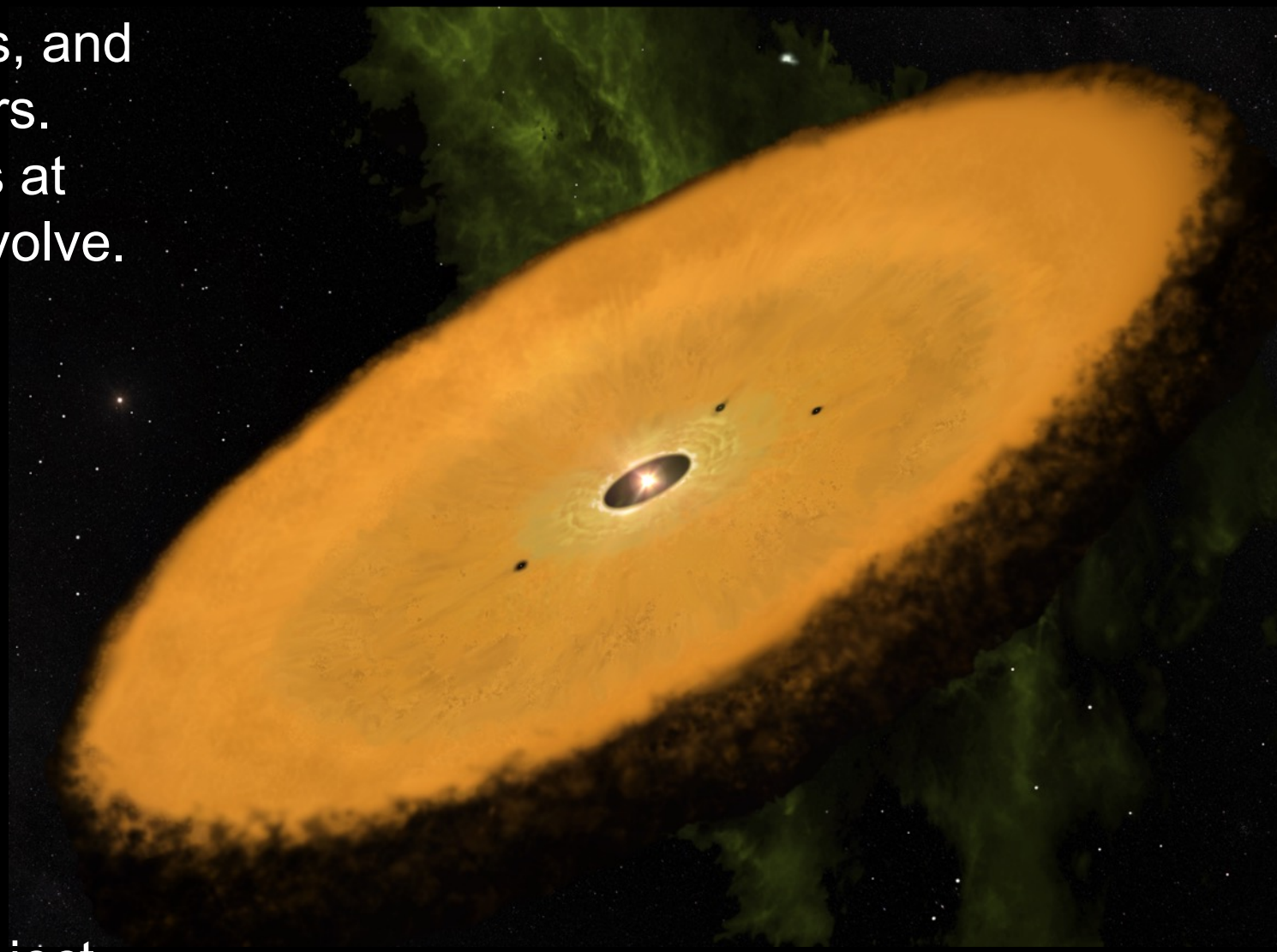
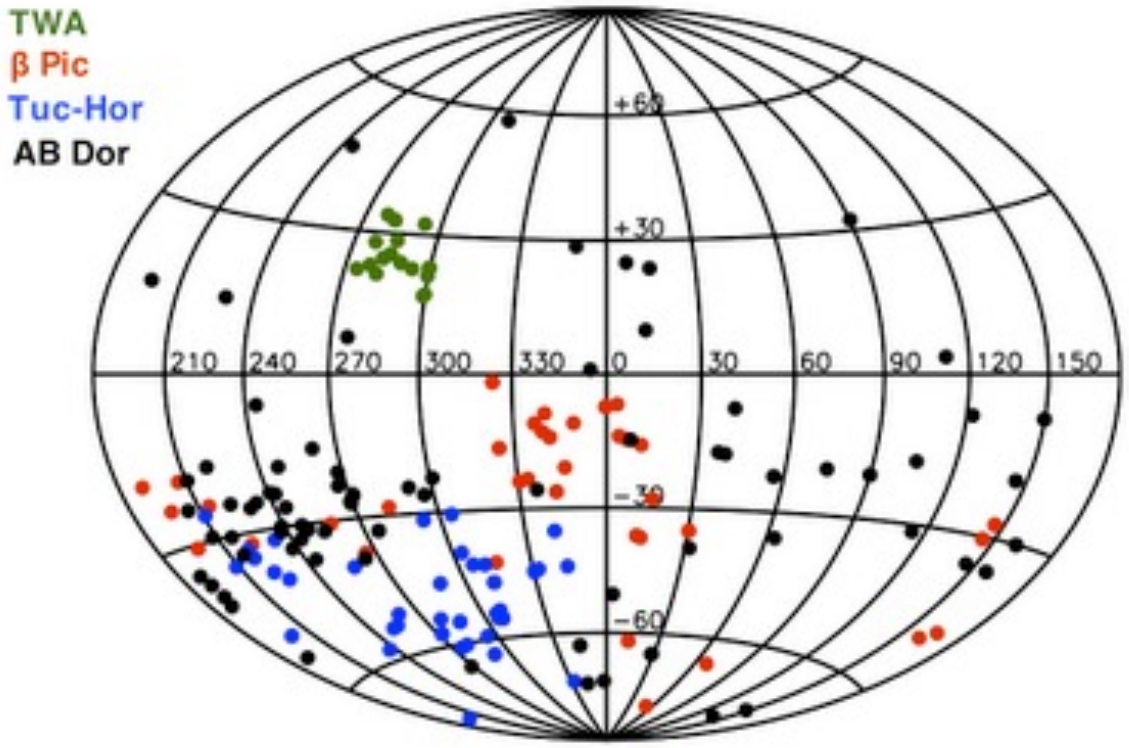


Image credit: Jonathan Holden,
NASA citizen scientist

Now how old are these disks? Groups of stars called “Moving Groups” or “Young Stellar Associations” that all orbit around the Galaxy together could tell us the answers.



Since these groups of stars all formed at once, we can calculate their ages by fitting stellar evolution models to all group members simultaneously.

Susan Higashio used custom Virtual Reality Software built by the Goddard Space Flight Center AR/VR Lab to study the motions of the stars with disks.

Credit: Matthew Brandt

Video here

Positions and velocities for 4 million stars from ESA’s Gaia mission, viewed in VR

We found:

- 10 new disks in moving groups
- An extreme debris disk
- A new moving group “Smethells 165”

Carina

Columba

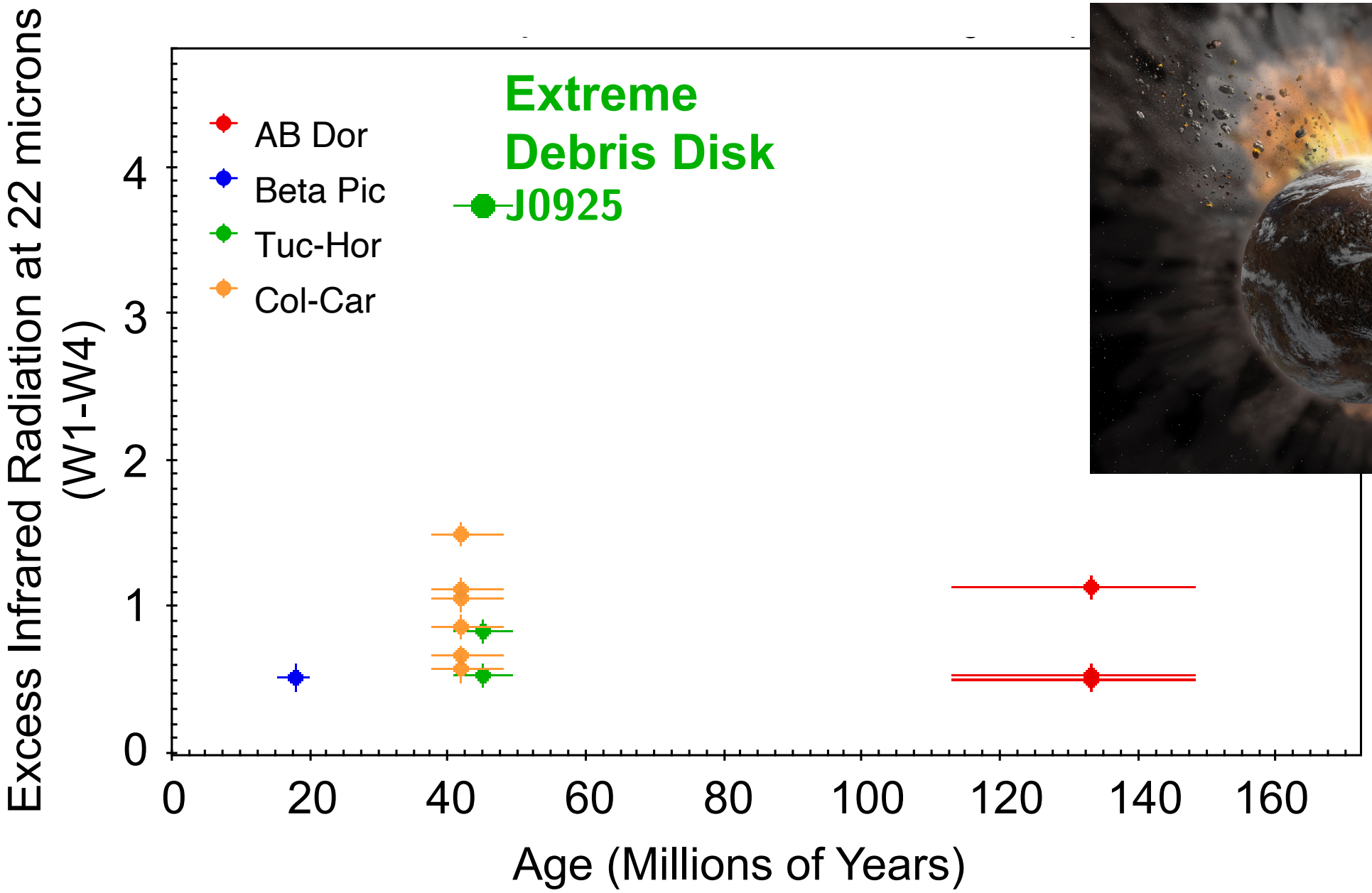
Tuc-Hor

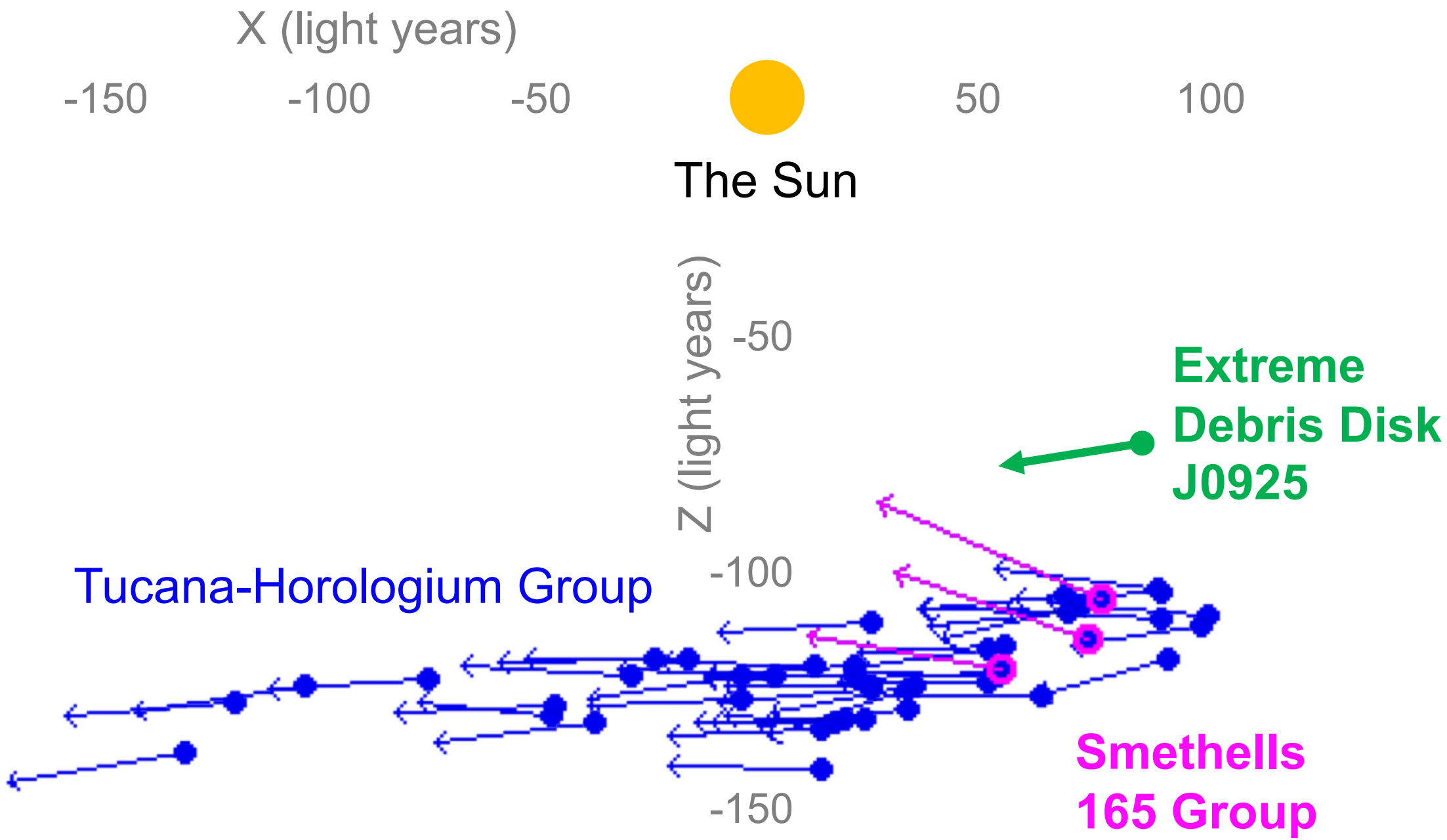
Disk Detective

Video here

Newly Discovered Disks in Moving Groups

Credit: Lynette Cook/NASA




X (light years)
-150
-100
-50
50
100
The Sun
Z (light years)
-50
-100
-150
Extreme
Debris Disk
J0925
Tucana-Horologium Group
Smethells
165 Group

Join the Disk Detective project and help find more homes for planets!

DISK DETECTIVE.org

Thank You!

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