National Center
for Earth and Space Science Education

Universities Space Research Association

Visiting Researcher Profile

Dr. Harri Vanhala

Space Science Researcher
National Center for Earth and Space Science Education

Research Specialty: The Origin of the Solar System

Bio

Dr. Harri Vanhala is a theoretical astrophysicist at the National Center for Earth and Space Science Education in Columbia, MD. He went to college at the University of Oulu in Finland and received his Doctor of Philosophy degree from there in 1997, after conducting his Ph.D. research work at the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA. Harri did postdoctoral appointments at the Carnegie Institution of Washington in Washington, DC, and at the Arizona State University in Tempe, AZ, and worked as an astrophysicist at the Challenger Center for Space Science Education in Alexandria, VA. Harri's research concentrates on using computer simulations to investigate the origin of the Solar System and examining how stars elsewhere in the universe may be similar to (or different from) the Sun. The goal of his research is to help us understand how planetary systems elsewhere in the Universe compare with the Solar System, and whether some of them could have Earth-like planets. Harri's educational experience ranges from visiting classrooms to giving public presentations, conducting teacher training workshops, and teaching college courses. Harri also oversees the MESSENGER Educator Fellowship Program, a professional development initiative that to date has trained over 8,000 educators across the nation on NASA's MESSENGER mission to Mercury. Harri has participated in several Journey programs, and in so doing has spoken to over 12,000 students, teachers, and other members of the community in Dickinson-Iron-Menominee, MI; Hilo, HI; Labette County, KS; Marquette, MI; Martinsville, VA; and Washington, DC.

Examples of Classroom Presentations

Life on Earth—and elsewhere? **[Grades: 3-12]**
How do you know something is alive? How can you say that a dog walking down the street is alive but a car next to it is not? We discuss what it is that makes something alive and what do you need to survive. Based on these results, we can look for life in surprising places on Earth—and maybe elsewhere!

The Origin of the Solar System **[Grades: 9-12]**
Are we alone? Is there life elsewhere in the universe? Is our solar system unique or might there be planets just like Earth out there somewhere? How did the Sun and the planets come to exist? Can pieces of rock falling from the sky help us understand how our planetary system was formed? Did a star have to die to give birth to the solar system? These are some of the questions I will attempt to answer in my discussion of "The Origin of the Solar System."

A Voyage through the Solar System **[Grades: K-12]**
We live aboard a spaceship called Earth. It's the big thing under your feet. It carries us through space at fantastic speeds all the while orbiting one special star we call the Sun. But only when you leave Earth and look back can you truly understand the nature of our existence. Get ready to be transformed into a cosmic giant, able to comfortably journey through our Solar System—a vast space with many tiny worlds.

Examples of Family/Public Program Presentations

Extreme Earth
Earth is our home. It is where we humans live and thrive. It is also the only place in the universe where we know life exists. What makes Earth such a special place? What is it like on the global scale? What are some of the extreme environments on Earth? How can these extreme places help us understand other worlds? Come discover answers to these questions as we explore our home planet!

Fifty of Your Very Own
Look up on a starry night far from city lights. What you're seeing is but a tiny portion of the Milky Way, our home galaxy. The Milky Way is a vast and swirling mass of 400,000,000,000 suns—enough to give 50 to every person on Earth! Come explore the different neighborhoods of the Milky Way, and get an understanding of our home world location among the stars.

A Voyage That Will Forever Change Your Perspective of Home
We live aboard a spaceship called Earth. It's the big thing under your feet. It carries us through space at fantastic speeds all the while orbiting one special star we call the Sun. But only when you leave Earth and look back can you truly understand the nature of our existence. How? Get ready to be transformed into a cosmic giant, able to comfortably journey through our solar system - a vast space home to many tiny worlds. Along the way we'll stop at many of these worlds, put them under the cosmic microscope, and see the majesty of the very small. It is a Voyage that will forever change your perspective of home.

How Big Is Big?
It's a big, often intimidating universe out there. How do we even begin to fathom objects and distances that dwarf anything we've ever experienced? Earth's place in space is knowable. The secret is placing the universe in a context that is familiar. Take a magical journey from spaceship Earth to points unknown.