

Graz Advanced School of Science
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND
THE GRAZ UNIVERSITY OF TECHNOLOGY

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The Formation of Terrestrial Planets and the Race to Find a Second Earth

Abstract:

Almost every day we can find news like the following one, from February 22nd this year, in the New York Times:

"Not just one, but seven earth-size planets that could potentially harbor life have been identified orbiting a tiny star not too far away, offering the first realistic opportunity to search for signs of alien life outside the solar system."

In my talk I will try to critically review, what we know about the more than 3500 planets in about 2500 planetary systems that astronomers have discovered from ground based observations and also from satellites within the last 25 years. The one big question whether we live on the only habitable planet in our universe is a challenging one not only for scientists but also for humanity. The big issue is to find terrestrial planets around other stars moving in orbits allowing the existence of water on their surface.

I will sketch the formation of our planetary system from the early phases of a disk around the Sun, the formation of planetesimals, planetary embryos up to the planets as they exist nowadays. In addition, the different discovery techniques that unveil the diversity of existing planets and planetary systems will be reviewed. The new satellites planned by NASA and ESA like TESS, CHEOPS, PLATO, and especially the James Webb Space Telescope with a 6.5 m mirror, as well as instruments on the surface, like the planned 42 m telescope in Chile, the ELT, will – within the next 10 years – bring us very probably a big step forward to be able to answer the question: ARE WE ALONE?

Termin: Dienstag, 23.5.2017, 17.00 Uhr

Ort: KFU Graz, Universitätsplatz 5, Hörsaal 05.01
Meet-the-speaker ab 16.30 Uhr, Bibliothek des FB Experimentalphysik, 1. Stock, ZiNr.: 122

Gastgeber: Univ.-Prof. Dr. W. Plessas – Inst. f. Physik – Theoretische Physik

For a regularly updated colloquium program see: <http://www.if.tugraz.at/colloquium.html>