



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

Gottfried Kirchengast

Wegener Center for Climate and Global Change and Institute of Physics, University of Graz

Advancing fundamentals of climate change physics: new insights on global warming and low carbon society implications

The climate physics basis underpins all of climate change science and societal implications, including the impacts of global warming and related natural and socio-economic changes. The latter include critical threats such as losses and damages, the need for adapting to changes already ongoing, and the need for mitigating the main causes such as greenhouse gas emissions in order to limit against catastrophic climate risks.

In this talk I will first highlight fundamentals of climate change physics, and discuss the physics of anthropogenic climate change and recent advances in understanding global warming in particular. This will provide insight how greenhouse gas concentrations and other influences evolve and drive radiative forcing, Earth's energy imbalance, and climate system responses. It will also imply how much carbon emission budget remains for avoiding undue climate risks, in accord with the Paris climate goal of limiting global warming to well below 2 °C with a target of 1.5 °C.

Building on these fundamentals, and accepting physical climate change realities together with basic societal values of responsibility and care, I will then address the implications that arise: the inevitable need for transforming to a low carbon and sustainably living society able to reach the Paris climate goal, and the profound challenges but also solution approaches and opportunities ahead for succeeding with this formidable task.

Date: Tuesday, 1 December 16:15

Location:

An online discussion will be held at 17:00 at <https://tugraz.webex.com/meet/>

Host: Roland Würschum

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