Dirichlet problems in warped products

Esko Heinonen
Universidad de Granada

"Warped products are manifolds of the form $M \times_\rho \backslash \mathrm{R}$ with Riemannian metric $g_M + \rho^2 dt^2$, where g_M is the metric on M and $\rho > 0$ is a smooth function on M. This notion generalises the Riemannian products $M \times \backslash \mathrm{R}$, basic example being the hyperbolic space $H^{n+1} = H^n \times_{coshr} \backslash \mathrm{R}$, where r is the Riemannian distance function on H^n from a fixed origin.

Existence of a non-singular Killing vector field makes it possible to define the notion of Killing graphs that are the counterpart of graphs of functions in Riemannian products $M \times \backslash \mathrm{R}$. Then the existence of Killing graphs with prescribed mean curvature can be studied by solving the corresponding Dirichlet problem on domains of M and by solving the asymptotic Dirichlet problem with continuous boundary data at infinity.

I will introduce the concepts mentioned above, discuss about the motivation to study the asymptotic Dirichlet problem for the mean curvature operator, and show some results about the conditions under which it can be solved. The talk is based on joint works with J.B.

Casteras, I. Holopainen and J. de Lira."

Data:	**Luns 4 de febreiro de 2019.**
Lugar:	**Aula 9, Facultade de Matemáticas.**
Duración:	**1 hora.**
Hora:	**16:00h.**