SEMINAIRE D'ANALYSE

➢ *VENDREDI 02 octobre 2009 à 16h15 à la salle MA A330*

*Monsieur Ben **SCHWEIZER** (Université de Dortmund, Allemagne)* donnera une conférence sur le thème:

"NEGATIVE INDEX OF OPTICAL MEDIA AND A THEORY FOR META-MATERIALS"

We discuss materials with a negative index for the refraction of light. We will explain some physical background, properties of negative index materials and the possibility to construct such materials. The break-through in this area of research was the design of smart "meta-materials" -- heterogeneous media composed of small structures. The length scale of the structure is so small that the medium behaves like a homogeneous block, but the effect of the small structures is visible in the effective properties of the homogeneous block. The mathematical tool for the analysis of meta-materials is the homogenization theory. We present fundamentals of this theory and an application to the three-dimensional Maxwell equations. We can present a positive result on negative index media. The analysis is based on two-scale convergence and several singular limits, a cross-link to Differential Geometry will also appear. The results were obtained together with Guy Bouchitte (Toulon).

Lausanne, le 4 septembre 2009
BD/VL

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