

# ORC research highlighted by top Physics Journal

A group of researchers at the ORC, have recently had their work highlighted as an “Editors suggestion” by Physical Review B.

The paper entitled “Metamaterial with Negative Index due to Chirality”, demonstrates for the first time chirality-induced negative refraction, and is due to be published later this month.

By creating a metamaterial consisting of layered, flat, mutually twisted metal patterns, the group including Eric Plum, Dr. Vassili Fedotov and Professor Nikolay Zheludev from the ORC have realized an artificial structure that can rotate the polarization state of light in a similar way to natural chiral materials such as quartz and sugar solution. However, the polarization rotation occurring between the two layers of the group’s artificial structure is a million times stronger than in quartz, leading to a negative index of refraction for one circular polarization. This discovery constitutes an important step towards the miniaturization of polarization control elements for microwave and optoelectronic applications and the realization of super-resolution imaging and data storage applications.