Westfälische Wilhelms-Universität Münster

FACHBEREICH PHYSIK

Allgemeines Physikalisches Kolloquium

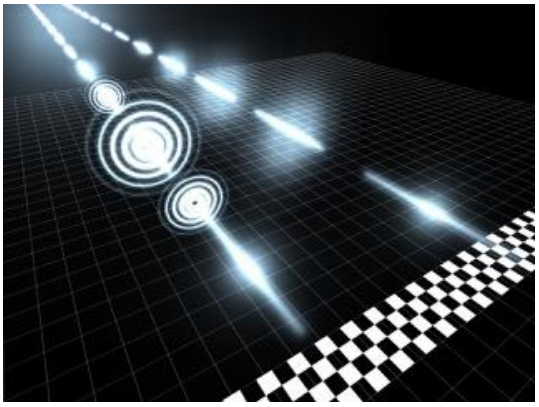
Donnerstag, 09.07.2015 um 16 Uhr c.t.

Prof. Dr. Miles Padgett
The University of Glasgow, Scotland, UK

Is the speed of light in free-space always c?

Light propagates more slowly when passing through materials like water or glass but goes back to its higher velocity as soon as it returns to free-space again. Or at least it did until now. Two and a half years ago, we set out to see if we could slow down light, just a little - and then keep it moving more slowly, even in free-space.

We race our photons in pairs. One photon is in its normal state, the other photon is sent through a special mask which gives the transmitted photon a transverse structure, i.e .shape. If both photons have been travelling at the speed of light it would be a dead heat, but we find that the re-shaped photon comes in second. So it seems that even in free-space the speed of light can be reduced.



This talk will place these results in context of both earlier work in the area and more generally in terms of other Physical systems.

Giovannini, D., Romero, J., Potoček, V., Ferenczi, G., Speirits, F., Barnett, S. M., Faccio, D. and Padgett, M. J. (2015). Spatially structured photons that travel in free space slower than the speed of light. Science, 347(6224), 857–860.

IG1 HS2, Wilhelm-Klemm-Straße 10
Kolloquiums-Kaffee ab 16.00 Uhr vor dem Hörsaal
Im Anschluss an den Vortrag findet ein geselliges Beisammensein mit Getränken und Knabbereien statt.

Kolloquiumsbeauftragter: Prof. Dr. Bratschitsch
Einladender: Prof. Dr. Denz