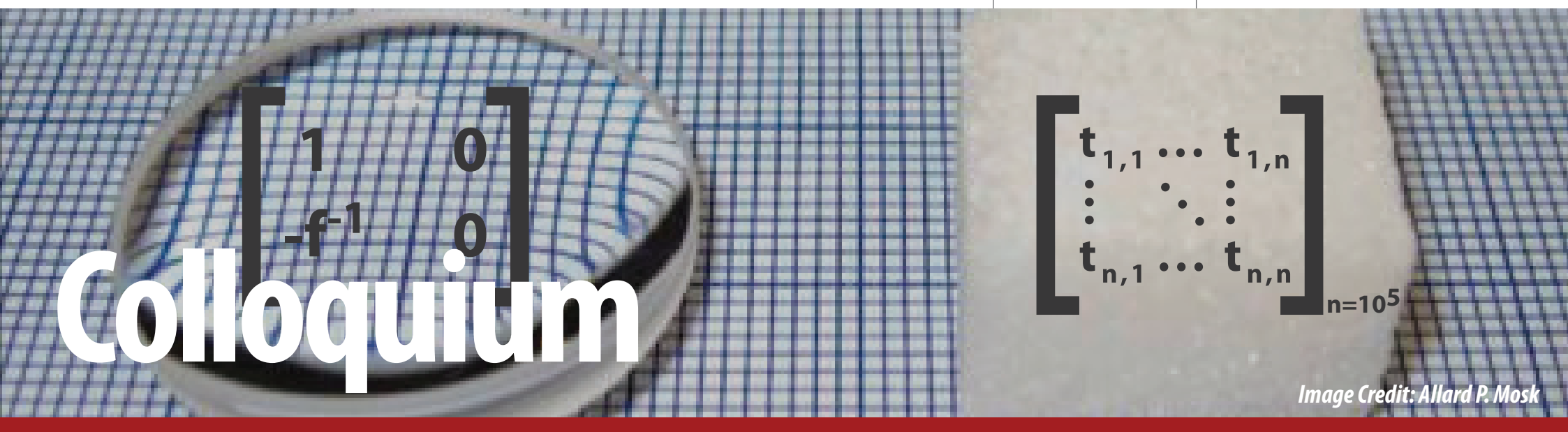
Department of Physics



SPRING 2013

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Can we see through paint?

day	location	time
FEBRUARY 20, 2013 WEDNESDAY	EE01	16:00

ABSTRACT

Light entering a scattering medium, a layer of paint or a biological tissue for instance, endures a complex random propagation that seemingly destroys all spatial information, rapidly preventing imaging or focusing. I will present a method to measure the transmission matrix of a scattering medium, i.e. the relationship between what enters and what goes through the medium, independently of how long and random the propagation has been. We show that not only are we able to focus light through an opaque layer of paint, but we are also able to reconstruct or "view" a simple object through it. Beyond the obvious imaging applications, we show that this technique also provides a new tool to understand and study the very rich domain of the propagation of waves in complex media.

The Physics Colloquia are designed to address a non-specialist, broad audience and introduce topics of contemporary research through lectures by leading experts. We warmly invite all members of the student body, including undergraduates enrolled in any programme.

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