

# COLLOQUIUM

**12 June 2003  
14:00**

The Meeting Room, Building 130  
Optics and Fluid Dynamics Department  
Risø National Laboratory  
DK-4000 Roskilde

## **Measurement of spatial coherence propagation in scattering media by phase space tomography and shearing interferometry**

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### **Abstract**

The propagation of electromagnetic radiation in scattering media has been studied from the beginning of the last century on the basis of the radiative transfer equation. The results found a wealth of applications in modern optics ranging from Astronomy and Atmospheric Physics to the detection of fish in the sea. Recently, the formalism has been successfully applied to study multiple scattering in scattering phantoms and biological media. Of main interest here is the extension of the above-mentioned method to incorporate also coherence effects and to investigate in that way the propagation of spatial and time coherence in multiple scattering media.

Two schemes for the measurement of spatial coherence of scattered light will be discussed. Whereas one of them is an interferometric method using a Sagnac shearing-interferometer, the other one, phase space tomography, is non-interferometric and is based on pure intensity measurements only.

The results of these studies are believed to serve for an understanding of cross-talk in parallel Optical Coherence Tomography (OCT). The concept of parallel OCT, as it has been developed at the EPFL, will be briefly introduced.

### **Contact information**

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