

## رتبه دوم خارجی Foreign Second Winner

**Project Title:**

Speckle Metrology - Development of Instrumentation Using Speckle Phenomenon

**Researcher:**

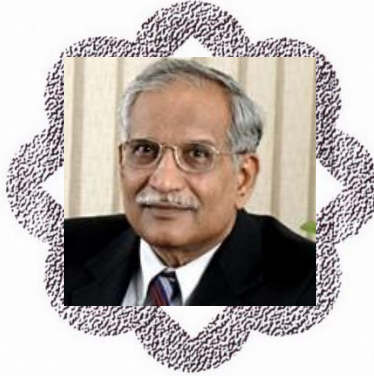
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**Country:**

India

**University:**

IIT Madras



**عنوان طرح:**

اندازه گیری با استفاده از پدیده Speckle

**محقق:**

دکتر راجپال سیروھی

**کشور:**

هندوستان

**دانشگاه:**

انستیتو تکنولوژی مدرس

**Abstract:**

*Evaluation of performance of optimally designed systems or sub - systems requires measurement with high accuracy. Methods employing interference of light waves provide this accuracy. Holographic interferometry is one such technique but it requires finite processing time, and a complex procedure for data extraction and interpretation.*

*Speckle techniques, particularly electronic speckle pattern interferometry (ESPI) are fast, and the configurations can be designed to sense only a particular component of a variable. Several novel schemes have been developed using ESPI and shear ESPI. Both bulk optics and fiber optics have been used in ESPI and shear ESPI. The techniques have been used for measurement of poisson's ratio, NDI of pressure vessels, fuel tanks and pipes, debonds in layered materials, crack detection in plates and weldment, vibration studies on musical instruments etc.*