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FIELD	GROUP	SUB-GROUP

Laser Speckle, Cascaded Diffusers, Remote Sensing, Diffuser Surface Properties.

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→ The scattering of laser light from a single diffuser and from a cascade of two diffusers is analyzed with particular emphasis on remote sensing. It is shown that diffuser surface properties and the spacing between diffuser planes can be determined remotely. Conceptually, one measures the angular distribution of the radiation pattern or the decorrelation of the far-zone speckle pattern with respect to changes in the wavelength or the angle of incidence of an input plane wave.

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PROGRESS REPORT

1. ARO PROPOSAL NUMBER: 20295-PH-F
2. PERIOD COVERED BY REPORT: March 1, 1983 to May 31, 1988
3. TITLE OF PROPOSAL: Doctoral Fellowships in Physical Optics
4. CONTRACT OR GRANT NUMBER: DAAG29-83-G-0015
5. NAME OF INSTITUTION: University of Rochester
6. AUTHORS OF REPORT: Nicholas George for K. J. Teegarden
7. LIST OF MANUSCRIPTS SUBMITTED OR PUBLISHED UNDER ARO SPONSORSHIP DURING THIS REPORTING PERIOD, INCLUDING JOURNAL REFERENCES:

This project was successfully terminated on 31 May 1988. The ARO Fellow supported completed his doctoral dissertation during the academic year 1987-88 and an abstract of his thesis is attached.

8. SCIENTIFIC PERSONNEL SUPPORTED BY THIS PROJECT AND DEGREES AWARDED DURING THIS REPORTING PERIOD:

Lyle Shirley, Ph.D., UR - 1988

(now working on remote sensing and ballistic missile decoy discrimination at the MIT Lincoln Laboratories)

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LASER SPECKLE FROM THIN AND CASCADED DIFFUSERS

by

Lyle Gordon Shirley

**Submitted in Partial Fulfillment
of the
Requirements for the Degree**

DOCTOR OF PHILOSOPHY

Supervised by Professor Nicholas George

**The Institute of Optics
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Rochester, New York**

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