

IART-055
***In Situ* Real-Time Moisture Monitoring of Roofing Systems Using Distributed Nanosensors**

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Abstract

The primary objective of this project is to pioneer distributed, nanosensing, building cladding systems with the participation of industries located in the Commonwealth of Pennsylvania. While moisture penetration is a prevalent problem for all building envelope systems, including foundation and basement floor slabs, its impact is the most fatal to roof systems. With more than about \$34 billion in total sales in the year 2000, the roofing industry is certainly on a steady growth curve. According to a recent industry survey, preventive roof maintenance programs can extend roof life by 30% to 60% beyond their current life span. This means that technology developed to alleviate roof moisture problems is addressing, roughly, a \$15 billion impact in the roofing sector, nation-wide.