

## OSA Travelling Lecturer seminar by Prof. Andrea Armani



**Date:** Wednesday 17<sup>th</sup> January 2018

**Time:** 10:30 am

**Location:** University of Twente, CR 2N

**Host:** Sonia M. García-Blanco, Optical Sciences group

Title: Nanomaterial-enhanced Integrated Photonics

Abstract: Integrated photonics offers a potential alternative to integrated electronics, with reduced heating and faster data rates. However, to achieve many of the desired performance metrics, it is necessary to combine disparate material systems. Heterogeneous integration is plagued by challenges, including different lattice constants, thermal expansion coefficients, and refractive indices, all of which can impact the final device performance and lifetime. Therefore, new materials and material systems as well as fabrication methods are desired. One approach is to combine the conventional top-down fabrication methods and optical materials, such as silica and silicon, with bottom-up fabrication and nanomaterials. These hybrid systems provide access to optical behavior and performance not attainable with conventional approaches. This talk will present an overview of the integrated hybrid photonic device research in the Armani Lab, such as nano-enhanced Raman lasers and frequency combs..

Speaker: Andrea Armani received her BA in physics from the University of Chicago and her PhD in applied physics with a minor in biology from the California Institute of Technology. She is currently the Ray Irani Chair of Engineering and Materials Science and a Professor of Chemical Engineering and Materials Science at the University of Southern California. She is the Director of the Northrop Grumman-Institute of Optical Nanomaterials and Nanophotonics and of two nanofabrication cleanrooms: the W. M. Keck Photonics Cleanroom and the soon to open John D. O'Brien Nanofabrication Laboratory. She is on the Board of ACS Photonics and the World Economic Forum's Expert Network, a member of Sigma Xi and NAI, a senior member of IEEE, AIChE, and SPIE, and a Fellow of OSA. She has received several awards, including the ONR Young Investigator Award, the PECASE, and the NIH Director's New Innovator Award, and she was named a Young Global Leader by the World Economic Forum.