

3M's Sumita Mitra Wins American Chemical Society's Regional Industrial Innovation Award for Breakthrough Dental Restorative

Sumita Mitra, corporate scientist, 3M ESPE Division, will receive the American Chemical Society's Great Lakes Regional Industrial Innovation Award for her role in inventing a nanotechnology-based dental composite that provides stronger, more aesthetic anterior and posterior dental restoratives. The award will be presented at the organization's Great Lakes regional meeting in October.

Under Mitra's leadership, a multidisciplinary 3M invention team developed a dental composite with long-lasting aesthetics that mimic natural teeth, yet has the strength and wear-resistance of hybrid composites. The team found that by creating high-strength nanocomposite particles, well below the wavelength of visible light, there is considerable latitude in adjusting the optical properties of the material, while retaining the mechanical integrity required for high stress-bearing restorations.

The resulting dental composite, known as ESPE brand Filtek supreme universal restorative from 3M, combines nanomeric filler particles, for polish retention and other optical properties, with nanocluster filler particles, which allow for advanced results in paste handling, strength and wear. The ESPE Filtek supreme restorative is available in 30 shades and four opacities.

During the research and development process, Mitra's team developed new chemical and processing technologies that are expected to have broader implications. The team developed two different types of nanofiller technologies, and also reached technical milestones in particle stabilization and particle drying. These developments led to numerous patents and patent applications.

Mitra holds a doctorate in organic/polymer chemistry from the University of Michigan (1977), and earned her master's degree in organic chemistry from the University of Calcutta (1972). She joined 3M in 1978 as a senior chemist. In 1998, Mitra was elected into 3M's prestigious Carlton Society, the highest 3M award given for lifelong contributions to research and development. She holds more than 47 patents, six of which relate to ESPE Filtek supreme restorative.

3M ESPE, part of the 3M Health Care Business family, develops and manufactures more than 2,000 products and services designed to help dental professionals set the standards for patient care and dental practice success. Additional information is available at www.3MESPE.com.

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