



*Marian McCord*



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### Textiles for Health and Well-being

**Research emphasis:**

Dr. McCord's scholarly work is inherently interdisciplinary and centered on basic and applied research in the area of medical and barrier textiles, with a particular focus in plasma treatment of fibers and textiles for health applications. She has been a pioneer in the application of Atmospheric Plasma Treatment to textiles and polymers. Her primary focus has been on textiles for protection from or treatment of disease or injury. Much of her recent funding has been in the development of novel insecticidal or "bite-proof" textiles.

**Selected publications:** (limit 4)

Nawalakhe, R., Vitichuli, N., Shi, Q., Noar, J., Caldwell, J.M., Breidt, F., Bourham, M.A., Zhang, X., and McCord, M.G.\*, "Novel Atmospheric Plasma Enhanced Chitosan Nanofiber Composite Wound Dressings", *J. Appl. Polym. Sci.*, 129: 916–923, 2013 (doi: 10.1002/app.38804).

Vitichuli, N., Shi, Q., Nowak, J.M., Kay, K., Caldwell, J.M., Breidt, F., Bourham, M.A., McCord, M.G.\*, Zhang, X., "Multifunctional Zinc Oxide-Nylon 6 Nanofiber mats by Electrospinning-Electrospraying Hybrid Process for Use in Protective Applications", *Sci. Technol. Adv. Mater.* 12, 2-7, Sept. 7, 2011.

Shi, Q., Vitichuli, N., Nowak, J., Caldwell, J.M., Breidt, F., Bourham, M.A., Zhang, X., and McCord, M.G.\*, "Durable Antibacterial Ag/polyacrylonitrile (Ag/PAN) Hybrid Nanofibers Prepared by Atmospheric Plasma Treatment and Electrospinning", *European Polymer Journal* 47:7, 1402-1409, July 2011.

**Application:**

- Insecticidal bed nets
- Protective clothing (chem, bio, insecticidal)
- Crop protection

**Collaboration potential:**

- Surface modification of fibers, films, textiles
- Environmentally responsive textiles
- Novel insecticidal mechanisms