



Hollins Professor Sees The Light In Killing Bacteria And Viruses

Roanoke, Va. – Scientists have known for years that ultraviolet (UV) light is extremely potent in destroying harmful contaminants. Hospitals have long used it to sterilize surgical instruments and the air in operating rooms, and UV disinfection systems have been proven a safe alternative to hazardous chemicals such as chlorine in treating drinking water.

However, existing UV sources are expensive to operate, have limited power output, and are inefficient at producing light at the proper wavelength to be effective. Dr. Joseph Ametepe, assistant professor and chair of the physics department at Hollins University, believes he and other researchers have found a better way to deliver UV light.

“We have demonstrated that microwave-driven excimer sources consistently produce stable, uniform UV light over the useful wavelength range,” says Ametepe. “These sources could be a simple, robust, and low-cost alternative to the UV lamps that are now available commercially.”

Ametepe is expanding an existing small-scale UV lamp development project at Hollins. “With a microwave lamp system at Hollins,” he says, “we are able to establish a broader base of work.”

Ametepe plans to further explore how excimer discharges of UV light can be applied to treating drinking water, food pasteurization (including its impact on *E. coli* bacteria), and destroying airborne viruses and bacteria. He also hopes to expand his studies to examine the treatment of hazardous wastes and pollution with UV rays.

“Excimer discharges contain a large percentage of high energy electrons, making them suitable for a variety of applications,” explains Ametepe, who adds that UV light may even be a useful weapon against anthrax.

Ametepe’s work will complement the efforts of Dr. Dennis Manos, professor of physics and applied science at the College of William and Mary, who has a working lamp laboratory at the Applied Research Center in Newport News. The ARC is home to industrial and university researchers collaborating in the development of technologies and processes. Ametepe and Manos previously collaborated on a research project for E. I. DuPont DeNemours and Co. that explored the use of excimers in polymer surface processing.

Ametepe has taught at Hollins since 1999 and holds a Ph.D. in applied physics from the College of William and Mary.

Hollins is an independent liberal arts university offering undergraduate education to women, selected graduate programs to men and women, and community outreach initiatives. Founded in 1842 as Virginia’s first chartered women’s college, Hollins was named one of the nation’s ten “Top Women’s Colleges” by *The Fiske Guide to Getting Into the Right College*.

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