New unprinting method can help recycle paper and curb environmental costs

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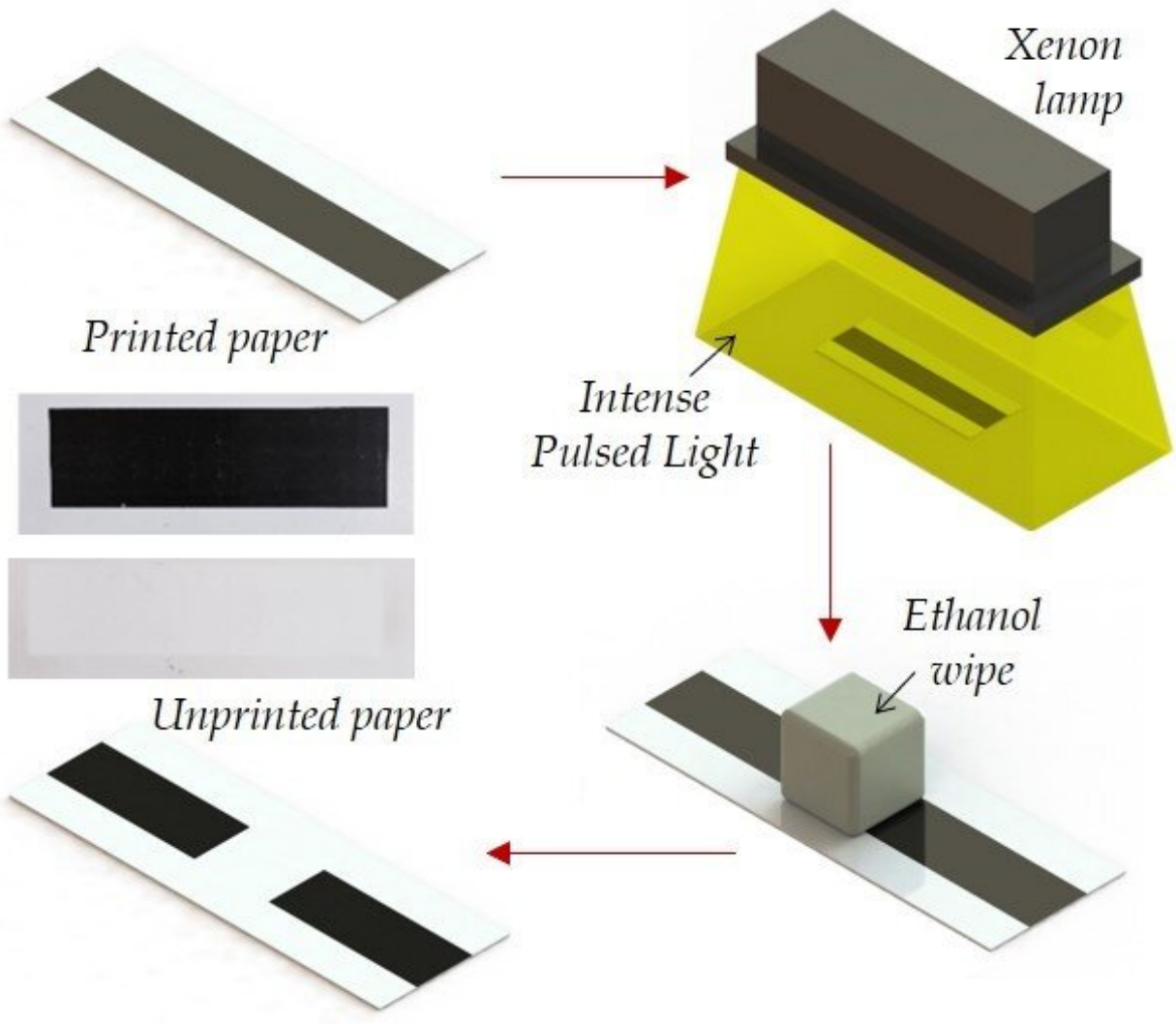

A new way to unprint paper using intense pulsed light from a xenon lamp. Credit: Rajiv Malhotra/Rutgers University-New Brunswick

Imagine if your printer had an "unprint" button that used pulses of light to remove toner—and thereby quintupled the lifespan of recycled paper.

A Rutgers-led team has created a new way to unprint paper that, unlike laser-based methods, can work with the standard, coated paper used in home and office printers. The new method uses pulses of light from a xenon lamp, and can erase black, blue, red and green toners without damaging the paper, according to a study in the *Journal of Cleaner Production*.

"Our method makes it possible to unprint and then reprint on the same paper at least five times, which is typically as many times paper can be reused with conventional recycling. By eliminating the steps involved in conventional recycling, our unprinting method could reduce energy costs , pollution and greenhouse gas emissions," said study coauthor Rajiv Malhotra, an assistant professor in the Department of Mechanical and Aerospace Engineering in the School of Engineering at Rutgers University-New Brunswick.

Conventional recycling of coated paper is a major contributor to climate change emissions, chemical pollution and energy use, according to the study. Extending the life of paper while avoiding these recycling steps would yield significant environmental benefits.

The engineers' next steps are to further refine the method by testing additional toner colors on a wider range of paper types. Unprinting can be done with simple equipment and a wipe with a very small amount of benign alcohol, and the engineers are working to integrate unprinting with typical office and home printers.

More information: Michael Dexter et al, Intense Pulsed Light