Better way of checking authenticity of Earth's smallest, most valuable bits of paper

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With stamp collecting a popular hobby and lucrative investment, scientists are describing a comprehensive new way of verifying the authenticity and rooting out fakes of what may be the smallest and most valuable pieces of paper on Earth. Their report appears in the ACS journal *Analytical Chemistry*.

Ludovico Valli and colleagues explain that museums, archives and private stamp collectors have long been searching for better ways to confirm the authenticity of rare stamps, and details like cancellation marks that increase value. But until now, those approaches have been limited to individual components of a stamp, like the ink, or have relied on expert inspections. Valli's team looked for a better way.

They describe successful use of a lab test called infrared spectroscopy to test all of the multiple components that make up a stamp—including paper fibers, fillers, inks, adhesives and coatings—to produce a portrait without damaging the stamp itself. Valli and colleagues tested it successfully on more than 180 Italian stamps that span almost the entire history of Italy's stamp-making, which dates back to 1850. They detected two counterfeits, one of the rare Gronchi Rosa, which was issued in 1961 for then-president Giovanni Gronchi's trip to South America, and a 2-cent stamp from 1861. They describe the technology as "a really simple, precise, immediate, and nondestructive method" for determining the authenticity of stamps.

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More information: "Spectral Database for Postage Stamps by Means of FT-IR Spectroscopy" Anal. Chem., 2013, 85 (15), pp 7085–7093 DOI: 10.1021/ac401067r