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Sharon Anne Garthwaite* (garthwai@math.wisc.edu), UW Math Dept., 480 Lincoln Dr., Madison, WI 53706. *“Ramanujan’s very interesting functions”: mock theta functions and vector-valued Maass-Poincare series.*

In 1920 Ramanujan wrote about his discovery of 19 “very interesting functions” in his last letter to G. H. Hardy. He called them mock theta functions and, as was his style, made numerous tantalizing assertions about these functions without any indication of proof. Since this time, there has been much study of the transformation properties of these functions and the size of their coefficients. Recently, Zwegers and Bringmann and Ono have revisited the mock theta functions, revealing that they are in fact the first tantalizing concrete examples of functions which are typically considered to be the first class of exotic automorphic forms. In doing so they proved the Andrews-Dragonette conjecture, thus yielding the first exact formula for the coefficients of a mock theta function. In this poster we review the history and mathematical importance of the mock theta functions. We then consider their newly found place as weight $1/2$ Maass forms, giving the exact formula for the coefficients of another mock theta function, and conclude with a discussion of the level of complexity involved in studying the coefficients of the Fourier expansions of such Maass forms of all weights. (Received September 26, 2006)