

BAILEY PAIRS AND QUANTUM q -SERIES IDENTITIES

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ABSTRACT. In the first part of this talk I will survey classical q -hypergeometric series as functions inside the unit disk along with the classical question: What kinds of identities do these series satisfy and what are the applications of these identities in number theory, combinatorics, and beyond? In the second part of the talk I will discuss recent work on the same question but for q -hypergeometric series at roots of unity, with a focus on finding a path to establishing quantum modularity. A key role will be played throughout by Bailey pairs. Some of this work is joint with Jehanne Dousse (Geneva) and Amanda Folsom (Amherst).