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**Nicholas A Loehr\*** (nloehr@vt.edu), 460 McBryde Hall, Virginia Tech Dept. of Mathematics, Blacksburg, VA 24060. *Quantum Lattice Paths and Bijective Subtraction.*

This talk describes a bijective proof of an identity relating the major index statistic on Dyck paths to the statistics “area” and “bounce” (which arise in the theory of quantum Catalan numbers). The core idea is to apply general techniques for automatically constructing bijections to convert an algebraic proof of the desired identity into a bijective proof. One such technique, called “bijective subtraction,” is closely related to the Garsia-Milne involution principle. (Received September 07, 2007)