

# THE GENERATING FUNCTION OF DYZ-LIKE NUMBERS IS ALGEBRAIC

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In a recent work Don Zagier mentions a mysterious integer sequence  $(a_n)_{n \geq 0}$  which arises from a solution of a topological ODE discovered by Marco Bertola, Boris Dubrovin and Di Yang. In my talk I show how to conjecture, prove and even quantify that  $(a_n)_{n \geq 0}$  actually admits an algebraic generating function which is therefore a very particular period. Moreover, I define and explore eight other alike sequences with very similar origins and also algebraic generating functions. The methods are based on experimental mathematics, numerics, and algorithmic ideas in differential Galois theory.

*Joint work with Alin Bostan (Inria Saclay) and Jacques-Arthur Weil (University of Limoges).*