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**Paolo Aluffi** and **Matilde Marcolli\*** ([matilde@caltech.edu](mailto:matilde@caltech.edu)), 1200 E California Blvd,  
Pasadena, CA 91125. *Feynman integrals and algebraic geometry*.

The parametric form of Feynman integrals in perturbative quantum field theory gives rise to periods of algebraic variety, whose complexity depends on how complicated the cohomology of these varieties is from the point of view of Grothendieck's theory of motives. To some extent this can be controlled in terms of determinant hypersurfaces, whose motivic nature is well understood. This circle of ideas also leads to the construction of algebro-geometric Feynman rules. (Received September 01, 2009)