

# MULTIPLE ZETA VALUES SEMINAR

Miércoles, 1 de octubre de 2014

16:30 h., Aula Gris 2 (ICMat, Campus de Cantoblanco)

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Open problems on relative periods  
of graph hypersurfaces

## Resumen:

Feynman integrals of quantum field theories that contain non-scalar particles go beyond the well-studied leading period  $\int \frac{\Omega}{\psi^2}$  associated to a Feynman graph via its graph polynomial  $\psi$ . Instead, all of its periods must be considered, corresponding to convergent integrals  $\int \frac{P}{\psi^N} \Omega$  with arbitrary polynomials  $P$ .

Even for the simplest Feynman graphs, this total space of periods is not understood and carries non-trivial structures. We explain open problems like gaps in even weights and absence of alternating sums in examples of linearly reducible graphs. For this class of graphs we suggest a method to compute the span of all periods explicitly in finite terms.