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New invariants for 3-manifolds and non-commutative topological quantum field theories

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We define some new topological invariants for 3 manifolds using the moduli space of taut codim-1 foliations instead of the moduli space of flat connections. In order to construct the new topological invariants we use techniques from ordinary topology and from non-commutative geometry. This article is a sequel in our attempt to construct a non-commutative version of topological quantum field theories, the only known example of generally covariant quantum field theories.

Recent Publications:

1. Zois I (2005) Operads and Quantum Gravity Repts on Math. Phys. 55.3.
2. Zois I (2000) A new invariant for σ models Commun.Math.Phys. 209 (2000) 757-783.
3. Zois I (1997) On search for the M-Theory Lagrangian Phys. Lett. B 402 33-35.
4. Zois I (2017) Non-commutative Geometry, Hodge Theorem and Holography, J. Phys. A 23.2
5. Zois I (1998) On Polyakov's basic variational formulae on loop spaces Rept.Math.Phys. 42 373-384.

Biography

Ioannis P Zois completed his PhD (DPhil) in the year 1996 at the age of 26 from Oxford University UK. He is the Head of Research at the Testing Research & Standards Centre (TRSC) of the Public Power Corporation (PPC) S.A. Greece. He has published more than 30 articles as sole author in peer-reviewed scientific journals and has contributed as coauthor in many others. He has held academic positions in various institutions including Oxford University, IHES, CERN etc. He is currently involved in 3 research projects funded by the Horizon 2020 programme.

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