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**UNIVERSITÄT
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ZUKUNFT
SEIT 1386

STRUCTURES JOUR FIXE

GIACOMO GORI

ITP, Uni Heidelberg

“Geometry of bounded critical
phenomena”

15 November 2019 11:30 AM

Room 106, Philosophenweg 12
Contact: office@structures.uni-heidelberg.de



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ABSTRACT

What would you do if you were a system at criticality confined in a bounded domain?

Of course you would forget about details of the interaction, and lattice spacing, flowing to an RG fixed point. Besides attaining this bulk universal behavior you would also try (boundary condition permitting) to forget about the confinement becoming "as uniform as possible".

Implementing this requirement in absolute geometric language, the one used by general relativity, we obtain novel predictions for the structure of one- and two-point correlators. These predictions are tested successfully against numerical experiments yielding a precise estimate of a critical exponent of the Ising model in three dimensions.

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“Laplacian roots, space
sandwiches, spectral methods, and
Ising clusters”

15 November 2019 13:30 PM

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ABSTRACT

Stimulating problems encountered in the work described in the morning are discussed trying to elucidate their general interest. The construction of constant fractional curvaturespaces, needing for a proper definition of the fractional laplacian and a solution for a Poincaré-Einstein space within a d -dimensional slab. Clever Monte-Carlo sampling techniques and precise tools for addressing PDEs. All these topics will be treated according to the audience tastes.

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