



ICTP | International Centre for Theoretical Physics
SAIFR | South American Institute for Fundamental Research

Campus of IFT-UNESP - São Paulo, Brasil

July 12-21, 2022

**MINICOURSE ON
 UNIVERSALITY
 IN THE
 EPSILON-EXPANSION**



ALESSANDRO CODELLO
 UdelaR – Montevideo, Uruguay

In the course we introduce the “functional” re-formulation of the standard Perturbative RG (FPRG) and use it to classify universality classes in arbitrary dimension (i.e. CFTs) within the epsilon-expansion together with the determination of the epsilon-series for all the relative CFT data. One novelty of the approach is the ability to construct epsilon-series for the OPE coefficients and not only for the critical exponents (i.e. CFT scaling dimensions).

The second part of the course will show how the FPRG formalism allows a straightforward generalization to the multicomponent scalar field case (arbitrary N) with almost no need for additional computations. We will explore many examples of known theories – including $O(N)$, Potts and Cubic models – together with more recent topics like Platonic Field Theories and multicritical $O(N)$ models.

Finally we present the recent full classification of $d_c=4$ and $N = 2,3,4$, $d_c=6$ and $N=2,3$ and $d_c=10/3$ and $N=2$ multicomponent universality classes and conclude with an overview of current research topics in the field.

There is no registration fee.

Application deadline: June 26, 2022

Online application and more information:

www.ictp-saifr.org/epsilon2022



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