

# INSTITUT D'ETUDES SCIENTIFIQUES DE CARGÈSE

## Cargèse International School 2016

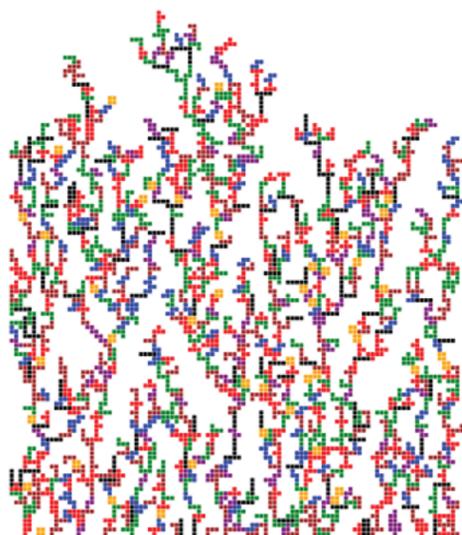
## Quantum integrable systems, conformal field theories and stochastic processes

September 12 - 24, 2016

### Web site

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Universality within and between complex random systems is a striking concept which has played a central role in the direction of research within probability, mathematical physics and statistical mechanics. Complementary to universality, is the exact description of the behaviors that are supposed to be universal as well as the determination which systems are supposed to display them. In recent years there has been an immense amount of progress in the rigorous mathematical understanding of certain universal scaling limits in both equilibrium and non-equilibrium statistical physical systems. On the equilibrium side, critical scaling limits are often described in terms of conformal field theories, among which Liouville quantum gravity plays an important role. On the non-equilibrium side, systems like growth processes are described through the Kardar-Parisi-Zhang universality class.

There is reason to believe that these two directions share many (as of yet) unexploited relationships. For instance, the field of quantum integrable systems was developed to study equilibrium systems, but has now found itself center stage in the KPZ universality class. Conversely, methods developed in stochastic PDEs for non-equilibrium systems have begun to make their way into constructive field theory.

The purpose of this two week conference is to bring together experts in these two areas and enable a lively exchange of ideas and methods through mini-courses, and research talks.

### Main topics will include

- Algebraic structures and methods of asymptotic analysis related to exactly solvable models in the KPZ universality class
- Conformal Field theory, combinatorial/algebraic/probabilistic aspects with emphasis on Liouville Field theory

### Eminent scientists in the field will animate the workshop. These include:

A. Borodin (MIT Mathematics Massachusetts US) F. Colomo (INFN Firenze IT), A. Guionnet (ENS Lyon FR), L. Cantini (Univ. Cergy Pontoise FR) P. Di Francesco (Univ of Illinois at Urbana-Champaign. US & IPhT Saclay FR), K. Kytola (Univ. of Helsinki FI), M. Kontsevich (IHES Bures sur Yvette FR), K. Kozłowski (ENS Lyon FR), A. Kupiainen (Univ of Helsinki FI), N. Makaraov (Caltech Pasadena US), J. Miller (Cambridge Univ. US), S. Ribault, (IPhT Saclay FR) L. Takhtajanest (Stony Brook Univ. New York US), S. Zelditch, (Northwestern Univ. US,) P. Zinn-Justin (Univ. Pierre et Marie Curie Jussieu FR)

### Scientific Committee

Sylvie Corteel (Univ. Paris Diderot FR), Rinat Kedem (Univ of Illinois at Urbana-Champaign US), Martin Hairer (Univ of Warwick Coventry UK), Kirone Mallick (IPhT Saclay FR), Paul Zinn-Justin (Univ. Pierre et Marie Curie Jussieu FR)

### Organization Committee

Jérémie Bouttier (IPhT Saclay FR), Ivan Corwin (Columbia Univ FR), Rémi Rhodes (LAMA-UPEM FR), Vincent Vargas (ENS Paris FR)

### Application and registration

<https://indico.in2p3.fr/event/12461/>

Registration Fees : 650€