



INdAM

Istituto Nazionale di Alta Matematica

*Chromatic and colored structures
in geometry and statistical physics*

INdAM Meeting
Palazzone SNS, Cortona (Italy)
May 24–30, 2015

Organizers:
Annalisa Marzuoli
& Francesco Bonsante (Pavia)
Silvia Benvenuti (Camerino)

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Monday, May 25

9.30-10.00	Registration/Opening
10.00-10.30	Break
10.30-11.25	Silvia Benvenuti: <i>Automorphisms of trivalent graphs</i>
11.25-12.40	Roland van der Veen (Lecture 1): <i>Chromatic spin network evaluations</i>
12.45-13.45	Lunch
14.25-15.20	Michele Mulazzani: <i>4-colored graphs and complements of links</i>
15.20-16.15	Robert Littlejohn: <i>Symplectic and semiclassical aspects of the Schläfi identity</i>
16.15-16.45	Break
16.45-17.20	Margherita Maria Ferrari: <i>Minimal edge coloring of class 2 graphs and double graphs</i>
17.20-18.30	Discussion

TITLES OF MINI-COURSES

François Costantino

Non semisimple spin networks and TQFTs

Martin Loeb1

Chromatic-type polynomials on graphs

Roland van der Veen

Planar spin networks: chromatic, hyperbolic and superconformal

Tuesday, May 26

9.30-10.45	François Costantino (Lecture 1): <i>A general overview of Jones polynomials, Reshetikhin-Turaev invariants and TQFTs</i>
10.45-11.15	Break
11.15-12.30	Martin Loeb1 (Lecture 1): <i>Pfaffian method: quadratic forms</i>
12.45-13.45	Lunch
14.25-15.20	Gaetan Borot : <i>Nesting properties of the $O(n)$ loop model on random surfaces</i>
15.20-16.15	Warner Miller : <i>Null-strut Regge Calculus: spinors and spacetime</i>
16.15-16.45	Break
16.45-17.20	Enrico Manfredi : <i>Alexander polynomial of links in Seifert fibered spaces</i>
17.20-17.55	Ester Davlit : <i>A classification of welded knots up to 4 crossings</i>

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Wednesday, May 27

9.30-10.45	Roland van der Veen (Lecture 2): <i>Circle packings, hyperbolic polyhedra</i>
10.45-11.15	Break
11.15-12.30	François Costantino (Lecture 2): <i>The non-semisimple category and the associated spin networks</i>
12.45-13.45	Lunch
15.00-22.00	Arezzo: <ul style="list-style-type: none">• Visit to the frescoes of Piero della Francesca (<i>The History of the True Cross</i>)• Social dinner at 19.30 VINERIA AL 10 Piazza San Giusto 10/C, Arezzo

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Thursday, May 28

9.30-10.45	François Costantino (Lecture 3): <i>3-manifold invariants and TQFTs issued from the non-semisimple spin networks</i>
10.45-11.15	Break
11.15-12.30	Martin Loeb (Lecture 2): <i>Discrete Ihara-Selberg functions and hyperdeterminants</i>
12.45-13.45	Lunch
14.25-15.20	Riccardo Piergallini : <i>From orbifold to branchfolds</i>
15.20-16.15	Mario Rasetti : <i>Quantum Life, quantum Intelligence: a Dantean path.</i>
16.15-16.45	Break
16.45-17.20	Muxin Han : <i>$SL(2, \mathbb{C})$ Chern-Simons, flat connections, and 4d quantum gravity</i>
17.20-18.30	Discussion

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Friday, May 29

9.30-10.45	Martin Loeb1 (Lecture 3): <i>Algorithmic aspects</i>
10.45-11.15	Break
11.15-12.30	Roland van der Veen (Lecture 3): <i>Quantization and superconformal indices</i>
12.45-13.45	Lunch
14.25-15.20 15.20-16.15	Bruno Martelli: <i>Quantum representation of mapping class group</i> Annalisa Marzuoli: <i>Quadratic algebras, Regge symmetries and quantum grammars</i>
16.15-16.45	Break
16.45-17.30	Discussion/Closing

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