Philippe @ Saclay (and elsewhere), the early years

J.-B. Zuber

LPTHE, Sorbonne Université

A trajectory in physics ?

A trajectory in physics ?

$\approx$ 170 publications

2 books

A trajectory in physics

A trajectory in physics

Me faire, par des feux successifs de salpêtre,
Lancer dans les prés bleus où les astres vont paître !

[Edmond Rostand. *Cyrano de Bergerac*]

A trajectory in physics

Me faire, par des feux successifs de salpêtre,
Lancer dans les prés bleus où les astres vont paître !

[Edmond Rostand. *Cyrano de Bergerac*]

Make me, by successive fires of saltpeter

Launch into the blue meadows where the stars go to graze!   [Google Translate]

A trajectory in physics

Preparation. . .

1982–1985: X = École Polytechnique ("major" = Valedictorian) !

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Preparation. . .

1982–1985: X = École Polytechnique ("major" = Valedictorian) !

Preparation. . .

1982–1985: $\mathbb{X}$ = École Polytechnique ("major" = Valedictorian) !

1985-1988 Corps des Mines

Preparation. . .

1982–1985: = École Polytechnique ("major" = Valedictorian) !

1985-1988 Corps des Mines
. . . and its duties . . .

en même temps (at the same time) Licence de Mathématiques
(1983) ;
DEA (master) in Solid State Physics (1987)
(needless to say, all with highest honors)

1986 : joins our (conformal) group in Saclay : Claude Itzykson, Bertrand Duplantier, Vincent Pasquier, Hubert Saleur, JBZ + Andrea Cappelli, and Ivan Kostov

1986–1989 : Saclay: 10 papers on CFT with H. Saleur and JBZ or alone; modular invariance, Coulomb gas picture, Ising correlators on a torus

Relations between the Coulomb Gas Picture and Conformal Invariance of Two-Dimensional Critical Models

P. di Francesco,[1] H. Saleur,[1] and J. B. Zuber[1]

(Les Houches summer 1988)

PDF, HS and JBZ on top of the Prarion (alt. 1969 m)

1988 : new project (following Ivan Kostov's steps...):
search of SU(3) analogues of Dynkin diagrams...

SU(N) LATTICE INTEGRABLE MODELS ASSOCIATED WITH GRAPHS

P. Di FRANCESCO* and J.-B. ZUBER**

Service de Physique Théorique de Saclay***, F-91191 Gif-sur-Yvette Cedex, France
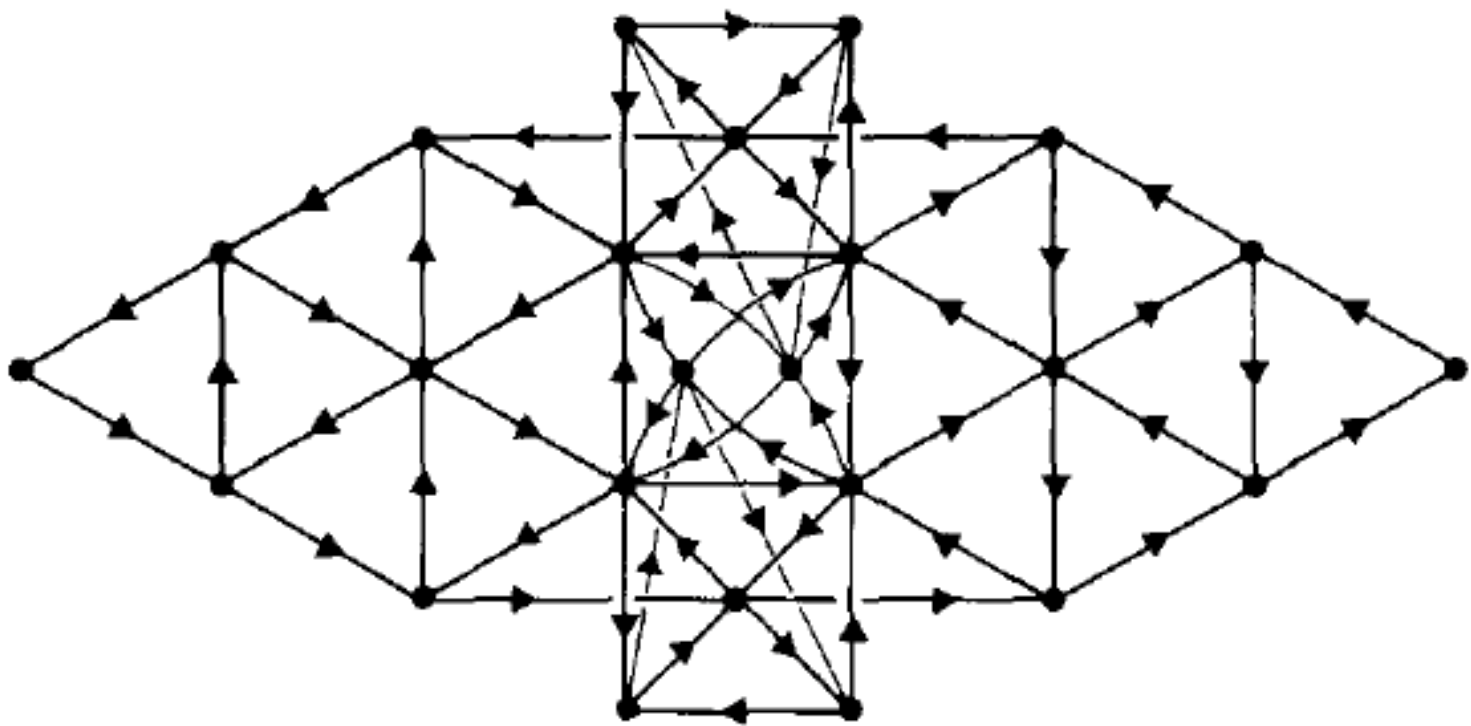
Fig. 20. The graph $\mathcal{E}^{(24)}$.
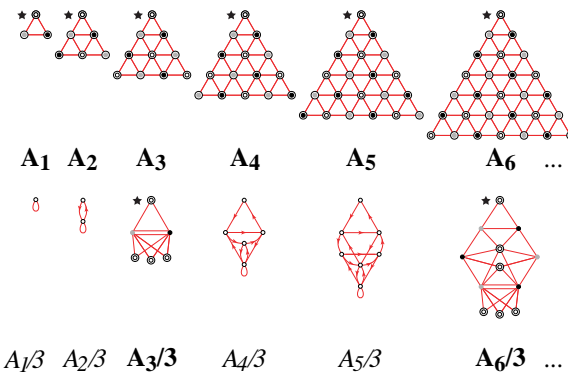
$\widehat{su}(3)_{21} \subset (\widehat{E_7})_1$

...a program completed ten years later by A. Ocneanu
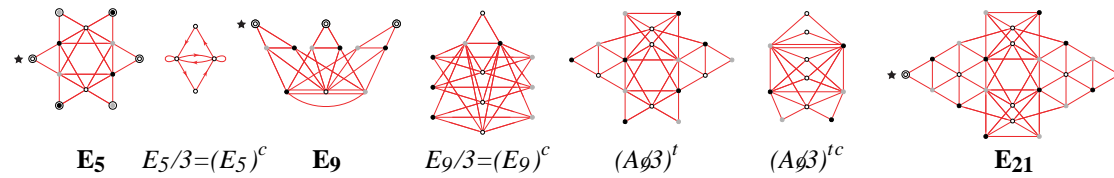
SU(3)$_k$

Orbifold series

| A$_1$ | A$_2$ | A$_3$ | A$_4$ | A$_5$ | A$_6$ | ... |

| $A_1/3$ | $A_2/3$ | **A$_3$/3** | $A_4/3$ | $A_5/3$ | **A$_6$/3** | ... |

Conjugate orbifold series

$A_1/3$ $A_2/3$
$[A_1^c]$ $[A_2^c]$ A_3^c A_4^c A_5^c A_6^c ...

A$_1$ **A$_2$**
$[3A_1^c]$ $[3A_2^c]$ $3A_3^c$ $3A_4^c$ $3A_5^c$ $3A_6^c$ ...

Exceptionals

E$_5$ $E_5/3=(E_5)^c$ **E$_9$** $E_9/3=(E_9)^c$ $(A\!\!\!/3)^t$ $(A\!\!\!/3)^{tc}$ **E$_{21}$**

16
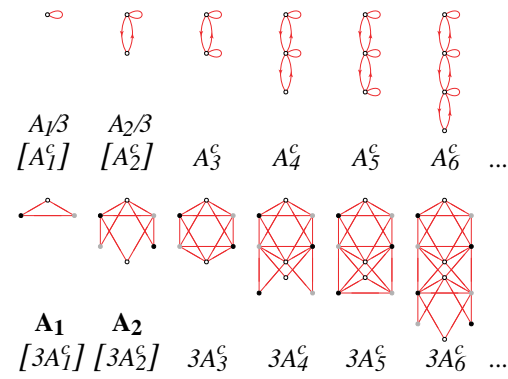
1989: PhD

1989-1991 Princeton

1989: PhD

1989-1991 Princeton : matrix models , [D. Kutasov, J. Distler]
Computing correlation functions in quantum gravity coupled to
$c \leq 1$ CFT's: an important check of the matrix/KdV approach

UNITARY MINIMAL MODELS COUPLED TO 2D QUANTUM GRAVITY

P. DI FRANCESCO* and D. KUTASOV**

Joseph Henry Laboratories, Princeton University, Princeton, NJ 08544, USA

Correlation functions in 2D string theory

P. Di Francesco and D. Kutasov
Joseph Henry Laboratories, Princeton University, Princeton, NJ 08544, USA

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1990: Santa Barbara: W-algebras etc , [Claude Itzykson and JBZ]

1991-1992 Saclay: Singular vectors,

[Michel Bauer, CI, JBZ], [Pierre Mathieu and David Sénéchal]

1992: Matrix integrals à la Kontsevitch, [C. Itzykson (and partly JBZ)]

1992-1993: Fusion potentials etc, [Frédéric Lesage and JBZ]

1994: Elliptic genus in $N = 2$ SCFT, [Ofer Aharony and Shimon Yankielowicz]

1994: Laughlin's wave function, . . . , [M. Gaudin, C.Itzykson and F. Lesage]

1995: Quantum intersection rings, [C.I.]

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1995: Quantum intersection rings, [C.I.]

in total $\sim$ 30 papers on CFT's, matrix integrals, etc, culminating with two pedagogical texts:

1995 : 2D Quantum Gravity and Matrix Models, Physics Reports, [Paul Ginsparg and Jean Zinn-Justin]

1996 : "Big Yellow Book" [Pierre Mathieu and David Sénéchal]

PHYSICS REPORTS

2D GRAVITY AND RANDOM MATRICES

P. Di FRANCESCO, P. GINSPARG, J. ZINN-JUSTIN

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("Big Yellow Book")

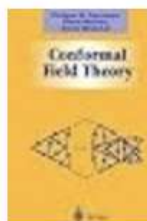## PHILIPPE DI FRANCESCO'S BOOKS

Average rating: 4.4 · 25 ratings · 1 review · 4 distinct works

Conformal Field Theory
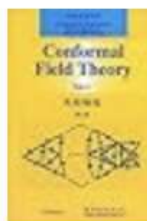
by Philippe Di Francesco, Pierre Mathieu, David Sénéchal

★★★★½ 4.33 avg rating — 21 ratings — published 1996 — 7 editions

The Oxford Handbook of Random Matrix Theory (Oxford Handbooks)

by Gernot Akemann (editor), Jinho Baik, Philippe Di Francesco

★★★★★ 4.75 avg rating — 4 ratings — published 2011 — 5 editions

共形场论(第1卷)

★★★★★ 0.00 avg rating — 0 ratings

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et en même temps …

with Cirano De Dominicis,

An exact solution for Parisi equations with R steps of RSB, Free energy and fluctuations

C De Dominicis and P Di Francesco

with Jean-Yves Ollitraut et al,

Systematic procedure for analyzing cumulants at any order

Di Francesco, P., Guilbaud, M., Luzum, M. & Ollitrault, J. Y., Apr 24 2017, In: Physical Review C. 95, 4, 044911.

with Fedor Smirnov,

OPE for XXX

Di Francesco, P. & Smirnov, F., Jul 1 2018, In: Reviews in Mathematical Physics. 30, 6, 1840006.

your curiosity extends to bird watching

The dark year(s)
courage and resilience. . .

The dark year(s)
courage and resilience. . .

For all that, your energy, your curiosity,
your courage, your achievments,

with friendship and admiration

Congratulations !!

**and many happy returns
and many more years of good work!**