

GAST

(Gauge and String Theories)

Sezione di Pisa

06 July 2023

Coordinatore nazionale: Domenico Seminara (Firenze)

Coordinatore locale: Stefano Bolognesi

Nodi: Bologna, Firenze, Parma, Perugia, Pisa, Trieste, Milano

PERSONALE

Stefano Bolognesi (UniPi Professore Associato, Incarico di ricerca INFN)

Kenichi Konishi (UniPi, Associato Eminente INFN)

Andrea Luzio (perfezionando SNS terzo anno)

Riccardo Del Monte, Lorenzo Pettinari, Roberto Menta (laureandi magistrali)

Attività di Ricerca 2022-2023

Non-perturbative aspects of gauge theories.

Symmetries and generalized symmetries;
Anomalies, strong anomalies, chiral anomalies and generalized anomalies.

Chiral gauge theories at strong coupling;
Phases of strongly coupled theories.

Topological solitons, Skyrmions;
Electroweak Skyrmions;
Nonabelian monopoles;
Magnetic skyrmions.

Charged hairy black holes in AdS and complexity.

Quantum measurement problem.

Callan-Rubakov effect for chiral theories;
Gravitational monopoles and CR effect.

Publicazioni 2022-2023

Dynamics of strongly-coupled chiral gauge theories

Stefano Bolognesi (Pisa U. and INFN, Pisa), Kenichi Konishi (Pisa U. and INFN, Pisa), [Andrea Luzio](#) (INFN, Pisa and Pisa, Scuola Normale Superiore)
e-Print: [2304.03357](#) [hep-th] Published in: J.Phys.Conf.Ser. 2531 (2023) 1, 012006

Aspects of the electroweak Skymion

Stefano Bolognesi (Pisa U.), Sven Bjarke Gudnason (Henan U.), [Giacomo Santoni](#) (U. Rome La Sapienza (main) and INFN, Rome) e-Print: [2303.07164](#) [hep-th] DOI: [10.1007/JHEP05\(2023\)093](#)
Published in: JHEP 05 (2023), 093, JHEP 05 (2023), 093

Near-BPS Skymions

Sven Bjarke Gudnason (Henan U.), Marco Barsanti (Pisa U. and INFN, Pisa), Stefano Bolognesi (Pisa U. and INFN, Pisa)
e-Print: [2206.09559](#) [hep-th] Published in: JHEP 11 (2022), 092, JHEP 11 (2022), 092

Quantum fluctuations, particles and entanglement: solving the quantum measurement problems

[Kenichi Konishi](#)
e-Print: [2302.08892](#) [quant-ph] Published in: J.Phys.Conf.Ser. 2533 (2023) 1, 012009

Dynamical Abelianization and anomalies in chiral gauge theories

Stefano Bolognesi (Pisa U. and INFN, Pisa), [Kenichi Konishi](#) (Pisa U. and INFN, Pisa), [Andrea Luzio](#) (Pisa, Scuola Normale Superiore and INFN, Pisa)
e-Print: [2206.00538](#) [hep-th] Published in: JHEP 12 (2022), 110

On the derivation of chiral symmetry breaking in QCD-like theories and S-confining theories

[Andrea Luzio](#) (Pisa, Scuola Normale Superiore and INFN, Pisa), [Ling-Xiao Xu](#) (U. Padua, Dept. Phys. Astron. and INFN, Padua)
e-Print: [2202.01239](#) [hep-th] Published in: JHEP 08 (2022), 016

Quantum fluctuations, particles and entanglement: A discussion towards the solution of the quantum measurement problems

[Kenichi Konishi](#) (Pisa U.)
e-Print: [2111.14723](#) [quant-ph] Published in: Int.J.Mod.Phys.A 37 (2022) 17, 2250113

On the time dependence of holographic complexity for charged AdS black holes with scalar hair

[Roberto Auzzi](#) (UCSC, Brescia and INFN, Perugia), [Stefano Bolognesi](#) (Pisa U. and INFN, Pisa), [Eliezer Rabinovici](#) (Hebrew U.), [Fidel I. Schaposnik Massolo](#) (IHES, Bures-sur-Yvette), [Gianni Tallarita](#) (Adolfo Ibanez U.)
e-Print: [2205.03365](#) [hep-th] Published in: JHEP 08 (2022), 235

Anomalies and phases of strongly coupled chiral gauge theories: Recent developments

Stefano Bolognesi (Pisa U. and INFN, Pisa), [Kenichi Konishi](#) (Pisa U. and INFN, Pisa), [Andrea Luzio](#) (Pisa, Scuola Normale Superiore and INFN, Pisa)
e-Print: [2110.02104](#) [hep-th] Published in: Int.J.Mod.Phys.A 37 (2022) 36, 2230014

Tesi 2022-2023

Dottorato: Marco Barsanti, ``A near-BPS analysis for the Skyrme model'', Agosto 22''

Seminari 2022-2023

Dottorato: Marco Barsanti, ``A near-BPS analysis for the Skyrme model'', Agosto 2

K. Konishi, 50 Years of Supersymmetry (SUSY 50) May 2023, Minneapolis USA: "Anomaly and Dynamics in Strongly-coupled Gauge Theories. New Criteria for Different Phases and Lessons from Supersymmetric Theories"

K. Konishi, Spacetime, Matter, Quantum Mechanics (DICE2022), September 2022, Castiglione: Quantum fluctuations, particles and entanglement: solving the quantum measurement problems

S. Bolognesi, Avenues of Quantum Field Theory in Curved Spacetime September 2022, Genova: ``Strong and Chiral theories''

A. Luzio, TFI 2022: Theories of Fundamental Interactions July 2022, Venice: "Chiral theories dynamics from symmetries and anomalies"