Josh | Nohle

Education

2009–2015 **Ph.D. in Physics** (GPA: 3.96/4.00) | University of California, Los Angeles | Los Angeles, CA

- Advisor: Zvi Bern
- With a team of collaborators, performed previously intractable scattering-amplitude computations to unravel underlying structures and symmetries of quantum field theories
- Focused attention on quantum gravity and its ultraviolet divergences—infinities that obstruct the union of general relativity and quantum mechanics

2004–2009 **B.S. in Physics, B.S. in Mathematics** (GPA: 4.00/4.00) | University of Cincinnati | Cincinnati, OH

- Physics (High Honors) | Mathematics (Honors)
- Electrical Engineering (6 quarters) | Industrial Management (4 quarters)

Experience

Sept. 2015 – Present **Postdoctoral Fellow** | Nordic Institute for Theoretical Physics (Nordita) | Stockholm, Sweden

- Coupled physical insights with efficient algorithms to build Wolfram Language (Mathematica) libraries of analytical and numerical tools for scattering-amplitude calculations
- Implemented optimized techniques for memory-intensive amplitude constructions, utilizing the parallel-processing capabilities of UCLA's Hoffman2 Cluster
- Discovered new—and elucidated existing—low-energy theorems for seemingly disparate particles such as gluons, gravitons and dilatons, with a focus on quantum corrections

Mar. 2012 – Aug. 2015 **Graduate Student Researcher** | UCLA, Department of Physics | Los Angeles, CA

- Through leading-edge computations, changed 30-year-old ideas concerning ultraviolet divergences, evanescent effects and dualities in nonsupersymmetric theories of gravity through two loop orders
- Constructed first nonsupersymmetric, loop-level evidence for the conjectured duality between the color algebra of Yang-Mills theory and the kinematics of gravity scattering amplitudes

Sept. 2009 – June 2015 **Teaching Assistant** | UCLA, Department of Physics | Los Angeles, CA

- Recipient of the "Outstanding Teaching Award" for the 2012–2013 academic year
- 19 quarters of teaching experience, from introductory labs to upper-division courses

June 2007 – Jan. 2008 **Research Assistant** | University of Cincinnati, Nanomaterials Physics Group | Cincinnati, OH

- Fabricated solid immersion lenses to enhance spatial resolution in nanostructure imaging

Sept. 2006 – Mar. 2007 **Electrical Product Engineering Co-Op** | Texas Instruments | Stafford, TX

- Initiated, designed and coded an addition to the digital-signal-processor test program
- Tested chips for a variety of operating parameters and investigated failure data

June 2005 – Sept. 2005 **Planning and Logistics Co-Op** | GE Aviation | Evendale, OH

- Programmed a comprehensive, user-friendly macro with VBA in Excel to consolidate and analyze data patterns in outside-vendor schedule stability

Publications

Summary: 7 papers, 180+ citations | Profile: `inspirehep.net/author/profile/J.Nohle.1`

Recent:

- P. Di Vecchia, R. Marotta, M. Mojaza and J. Nohle, *"New Soft Theorems for the Gravity Dilaton and the Nambu-Goldstone Dilaton at Subsubleading Order,"* Phys. Rev. D 93, 085015 (2016)
- Z. Bern, S. Davies and J. Nohle, *"Double-Copy Constructions and Unitarity Cuts,"* Phys. Rev. D 93, 105015 (2016)
- Z. Bern, C. Cheung, H.-H. Chi, S. Davies, L. Dixon and J. Nohle, *"Evanescent Effects Can Alter Ultraviolet Divergences in Quantum Gravity without Physical Consequences,"* Phys. Rev. Lett. 115, 211301 (2015)

Programming Skills

Proficient: C++ | Wolfram Language (Mathematica)

Sample: Reduction of tensor integrals to scalar integrals | `github.com/nohle/resume-and-code-sample`

Kaserngatan 8, 1311 – SE-761 46 Norrtälje, Sweden
After Sept. 1st: 3365 Overland Ave., Apt. 6 – Los Angeles, CA 90034
✉ *josh.nohle@gmail.com* • *nohle* • *nohle*