

About

The Weyl Center is an independent research group developing theoretical models, numerical methods, and open-source scientific software across mathematical physics and quantitative biology.

Our code, proofs, and computational artifacts are released openly, versioned, and reviewed internally. We collaborate with researchers globally, with particular interest in researchers working in under-resourced or non-traditional academic settings.

Research

■ Mathematical Physics

Physical admissibility, operator methods, symmetry, and dynamical systems.

■ Scientific Computing

Open research infrastructure, numerical verification, and reproducible software pipelines.

■ Computational Physics

Structure-preserving algorithms, numerical stability, and high-precision simulation.

■ Quantitative Biology

Multiscale modeling, biophysics, and computational neuroscience.

Current work

Runge-Kutta Stability and CPTP Boundary Detection

Can a full-step/two-half-step Runge-Kutta stability defect serve as an exact signed CPTP-boundary detector when ordinary convergence remains non-CPTP at every finite refinement?

■ VALIDATION UNDERWAY / MANUSCRIPT IN PREPARATION

People

Olivier L. Bernard, MSc

UFR PHITEM, UNIVERSITÉ GRENOBLE ALPES
FORMERLY: WHITING SCHOOL OF
ENGINEERING, JOHNS HOPKINS UNIVERSITY

Mathematical physics and numerical modeling,
including non-Hermitian dynamics,
compact-binary waveforms, fractional PDEs, and
structure-aware simulation.

Yichen Liu, MSc

DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING, SHANGHAI JIAO TONG
UNIVERSITY
NUMERICAL SOLVER & SIMULATION DEVELOPER
INTERNSHIP, SIEMENS DIGITAL INDUSTRIES
SOFTWARE, SHANGHAI

Scientific computing and computational modeling
across lattice topology, spectral PDE methods,
inverse problems, particle dynamics, and scientific
audit.

G. Blake Pierpoint, BSc

EASTERN VIRGINIA MEDICAL SCHOOL AT OLD
DOMINION UNIVERSITY
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Medical student working across mathematical
physics, computational neuroscience, biophysical
modeling, and numerical simulation of open
quantum and neuronal systems.

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