Hongfei Shu

Beijing Institute of Mathematical Sciences
and Applications (BIMSA),
Beijing, 101408, China,

Phone: +86 13521479078
Email: shuphy124@gmail.com

Personal Details

Family Name: Shu,   First Name: Hongfei

Date of Birth: July 12, 1991,   Gender: Male

Nationality: Chinese

Education and Work

Beijing Institute of Mathematical Science and Applications, Beijing, China
Postdoc fellow, Oct 2021 - now

Nordic Institute for Theoretical Physics, Stockholm, Sweden
Postdoc fellow, Sep 2019 - Aug 2021

Tokyo Institute of Technology, Tokyo, Japan
PhD in Physics, Apr 2016 - Mar 2019
Advisor: Katsushi Ito
Thesis: ODE/IM correspondence and its applications

Tokyo Institute of Technology, Tokyo, Japan
Master in Physics, Apr 2014 - Mar 2016
Advisor: Katsushi Ito
Thesis: Minimal surface in AdS spacetime and ODE/IM correspondence

Tokyo Institute of Technology, Tokyo, Japan
Bachelor in Physics, Apr 2010 - Mar 2014

Grants and Honors

JSPS Research Fellowship for Young Scientists, Apr 2017-Mar 2019

Grant-in-Aid for JSPS Fellows, Apr 2017-Mar 2019

Publications

[1] "Wall-crossing of TBA equations and WKB periods for the third order ODE,"
Katsushi Ito, Takayasu Kondo and **Hongfei Shu**.
arXiv:2111.11047 [hep-th].

[2] "WKB periods for higher order ODE and TBA equations,"
Katsushi Ito, Takayasu Kondo, Kohei Kuroda and **Hongfei Shu**,
JHEP **10** (2021), 167 [arXiv:2104.13680 [hep-th]].

[3] "U(1) CS Theory vs SL(2) CS Formulation: Boundary Theory and Wilson Line,"
Xing Huang, Chen-Te Ma, **Hongfei Shu** and Chih-Hung Wu,
arXiv:2011.03953 [hep-th]

[4] "Extended systems of Baxter Q-functions and fused flags I: simply-laced case,"
Simon Ekhammar, **Hongfei Shu** and Dmytro Volin,
arXiv:2008.10597 [math-ph]

[5] "$T\bar{T}$ deformation of chiral bosons and Chern-Simons AdS$_3$ gravity,"
Hao Ouyang and **Hongfei Shu**,
Eur. Phys. J. C **80** (2020) no.12, 1155 [arXiv:2006.10514 [hep-th]]

[6] "QQ-system and non-linear integral equations for scattering amplitudes at strong coupling,"
Davide Fioravanti, Marco Rossi and **Hongfei Shu**
JHEP **12** (2020), 086 [arXiv:2004.10722 [hep-th]]

[7] "ODE/IM correspondence for affine Lie algebras: A numerical approach,"
Katsushi Ito, Takayasu Kondo, Kohei Kuroda and **Hongfei Shu**,
J. Phys. A **54** (2021) no 4, 044001 [arXiv:2004.09856 [hep-th]]

[8] "Quantum correction of the Wilson line and entanglement entropy in the pure AdS$_3$ Einstein gravity theory,"
Xing Huang, Chen-Te. Ma and **Hongfei Shu**
Phys. Lett. B **806** (2020), 135515 [arXiv:1911.03841 [hep-th]].

[9] "TBA equations for the Schrödinger equation with a regular singularity,"
Katsushi Ito and **Hongfei Shu**
J. Phys. A **53** (2020) no.33, 335201 [arXiv:1910.09406 [hep-th]].

[10] "Correlation functions, entanglement and chaos in the $T\bar{T}/J\bar{T}$-deformed CFTs,"
Song He and **Hongfei Shu**,
JHEP **02** (2020), 088 [arXiv:1907.12603 [hep-th]].

[11] "Integrability and Spectral Form Factor in Chern-Simons Formulation,"
Chen-Te Ma and **Hongfei Shu**,
Int. J. Mod. Phys. A **35** (2020) no.24, 2050143 [arXiv:1902.10279 [hep-th]].

[12] "TBA equations and resurgent Quantum Mechanics,"
Katsushi Ito, Marcos Mariño and **Hongfei Shu**,
JHEP **01** (2019), 228 [arXiv:1811.04812 [hep-th]].

[13] "T-duality to Scattering Amplitude and Wilson Loop in Non-commutative Super Yang-Mills Theory,"
Song He and **Hongfei Shu**,
JHEP **1808**, 172 (2018) [arXiv:1806.02707 [hep-th]].

[14] "Massive ODE/IM Correspondence and Non-linear Integral Equations for $A_r^{(1)}$-type modified Affine Toda Field Equations,"
Katsushi Ito and **Hongfei Shu**,
J. Phys. A **51**, no. 38, 385401 (2018) [arXiv:1805.08062 [hep-th]].

[15] "ODE/IM correspondence and the Argyres-Douglas theory"
Katsushi Ito and **Hongfei Shu**,
JHEP **1708**, 071 (2017) [arXiv:1707.03596[hep-th]]

[16] "ODE/IM correspondence for modified $B_2^{(1)}$ affine Toda field equation"
Katsushi Ito and **Hongfei Shu**,
Nucl. Phys. B **916**, 414 (2017)[arXiv:1605.04668[hep-th]]

Talks and Seminars

Institute for Advanced Study, Soochow University, November 25, 2021, Online talk. "TBA/WKB correspondence and Resurgent Quantum Mechanics."

East Asia Joint Symposium on Fields and Strings, November 23, 2021, Online talk. "Wall-crossing of TBA equations and WKB periods for the higher order ODE."

Department of Physics, Jilin University, November 10, 2021, Online talk. "Wall-crossing of TBA equations and WKB periods for the higher order ODE."

Center for Joint Quantum Studies (CJQS), Tianjin University, May 14, 2020, Online talk. "ODE/IM correspondence and its application to scattering amplitude/Wilson loop dual"

Sezione INFN di Bologna, Department of Physics and Astronomia, University di Bologna, November 14 2019, Bologna, Italy, "TBA system and schrödinger equation"

Korea Institute for Advanced Study, July 4, 2019, Seoul, Korea, "TBA equations and resurgent Quantum Mechanics"

School of Physics and Telecommunication Engineering, South China Normal University, May 14, 2019, Guangzhou, China. "TBA equations and Schrödinger equation with angular momentum"

Department of Physics, Sun Yat-sen University, May 7, 2019, Guangzhou, China
"TBA equations and resurgent Quantum Mechanics"

School of Physics and Astronomy, Sun Yat-sen University, May 5, 2019, Guangzhou, China
"Solving Quantum Mechanics by using Integrability"

Department of Physics, Jilin University, April 24, 2019, Jilin China
"Thermodynamic Bethe ansatz equations and resurgent Quantum Mechanics"

String Theory and Quantum Field Theory Conference, Fudan University, March 13, 2019, ShangHai China "TBA equations and resurgent Quantum Mechanics"

Department of Physics, Rikkyo University, May 29, 2018, Tokyo Japan
"ODE/IM correspondence and its application to N=2 gauge theories"

Physical Society of Japan Spring meeting 2018, Mar 22 2018, Tokyo Japan
"ODE/IM correspondence for modified affine Toda field equation"

Department of Physics, Kyoto University, Dec 13, 2017, Kyoto Japan
"ODE/IM correspondence and its application to N=2 SCFT"

Keio University, Sep 6, 2017, Tokyo Japan
"ODE/IM correspondence and the Argyres-Douglas theory"

Max Planck Institute, Aug 14, 2017, Potsdam German
"ODE/IM correspondence and the Argyres-Douglas theory"

Department of Physics, Sichuan University, May 26, 2017, Chengdu China: "ODE/IM correspondence and the Argyres-Douglas theory"

Institute of Theoretical Physics Beijing, May 15, 2017, Beijing China
"ODE/IM correspondence and the Argyres-Douglas theory"

Physical Society of Japan Spring meeting 2017, Mar 20 2017, Osaka Japan
"ODE/IM correspondence and Argyres-Douglas theory"

Physical Society of Japan Spring meeting 2016, Mar 22, 2016, Senda, Japan
"T-Q relation for modified affine B_2 Toda field equation"

Physical Society of Japan Autumn meeting 2015, Sep 27, 2015, Osaka, Japan
"Affine B_2 Toda field theory and AdS4 minimal surface"

Schools and Conferences

Integrability in Gauge and String Theory 2018, Aug 20-24 2018, Copenhagen, Denmark

Strings and Fields 2018, Jul 30-Aug 3 2018, YITP Japan

Strings 2018, Jul 25-29 2018, Okinawa Japan

String-Math 2018, Jul 18-22 2018, Sendai Japan

East Asia Joint Workshop on Fields and Strings 2017, Nov 13-17 2017, KEK Japan

Exact methods in low dimensional statistical physics, Jul 25-Aug 4 2018, Cargese France

Integrability in Gauge and String Theory 2017, Jul 17-21 2017, Paris France

Strings and Fields 2016, Aug 8-12 2016, YITP Japan

Strings 2016, Aug 1-5 2016, Beijing China

Strings and Fields 2015, Nov 9-13 2015, YITP Japan

Integrability in Gauge and String Theory 2015, Jul 13-17 2015, London, UK

Young Researchers Integrability School, Jul 6-10 2015, Durham UK

Strings and Fields 2014, Jul 22-26 2014, YITP Japan