# 姜云国 Yunguo Jiang

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## TEACHING EXPERIENCE

**For undergraduate courses, I mainly give lectures in classical mechanism and electromagnetism. Besides, I contribute several lectures of my research topics, for instance the progress in astrophysics, the mysterious Universe. I have contributed to the course of free style physics for undergraduates in SDU and ANU Joint Science College. For graduate courses, I have taught Group Theory, Radiation processes in astrophysics, and Active Galactic Nuclei.**

## RESEARCH INTERESTS

**I will give a list for my research topics, now and future. Currently, I am interested in the both theoretical physics and astrophysics. For the latter, I mainly study the Active Galactic Nuclei (AGN) and Gamma-ray bursts(GRB). Emitting regions and variation of blazars are the primary topic. The prompt emission mechanism of GRB is also studied. The evolution of AGN and its cosmology relation is also interesting. Polarization information provides us with more information about the emission, and they are used to constrain models. All these studies aim to understand the radiation mechanism for high-energy astrophysics.**

**For the theoretical physics, I major in solitons, and study its dynamics. Solitons, especially the non-Abelian domain, play an important role in many**

**branches of physics. The perturbation theory is the most successful part of theoretical physics.**

**The remained unresolved questions are most of the non-linear domain. To understand these non-linear phenomena, solitons are the bridge between the integrable and non-integrable systems. The dynamics of solitons indicate both the features of linear and non-linear aspects. Currently, we aim to understand the formation of fractal structure in the kink-Antikink collisions. The study of the non-Abelian vortices will provide deep insights in many branches, including the quark-confinement, the condensed matter physics. Especially, the moduli space of non-Abelian vortices manifests the GNO duality, which corresponds to the Langlands program in mathematics. The final aim of this program is to unify various branches of mathematics. Thus, the non-Abelian vortices may provide a net work to connect algebra, group theory, geometry in a visualized manner.**

## EDUCATION BACKGROUND

**2008.01~2011.06** **Pisa University, Department of Physics,**
**Supervisor: Kenichi Konishi**

**2003.09~2006.06** **Beijing University of Technology, School of Applied physics and mathematics, Supervisor: Yong-Chang Huang**

**1999.09~2003.06** **Yantai Normal College, Department of physics and electronic engineering**

## EMPLOYMENT HISTORY

**2013.09~Now** **Shandong University at Weihai, School of Space Science and physics.**

**2011.07~2013.08** **Institute of High Energy Physics, Chinese Academic of Science**
**Collaboration with Zhe Chang.**

## Honors/Awards

## RESEARCH VISITS

**2016.10 Keio University, Japan**

## RESEARCH PROJECTS

**2021.01-2023.12 The cosntraint of the multibands correlations and polarization for the emitting regions and variation mechanism of blazars， NSFC**

**2016.01-2018.12 The complex radiation mechanism of blazars, NSFC**

**2015.01-2017.12. Inverse Compton scattering of polarized photons and its application in astrophysics, NSFC**

**SELECTED PUBLICATIONS**

List of Publications

October 01, 2020
A Comprehensive Study on the Variation Phenomena of AO 0235+164
Wang, Yi-Fan, **Jiang, Yun-Guo***, Astrophysical Journal, 2020 , 902, 41, https://ui.adsabs.harvard.edu/abs/2020ApJ...902...41W

April 01, 2020
Locations of optical and γ-ray emitting regions and variation phenomena of PMN J2345-1555
**Jiang, Yunguo***, Hu, Shao-Ming, Chen, Xu, Shao, Xi, Huo, Qiu-Hong, Monthly Notices of the Royal Astronomical Society, 2020, 493, 3757,
https://ui.adsabs.harvard.edu/abs/2020MNRAS.493.3757J

October 01, 2019
Curvature-induced Polarization and Spectral Index Behavior for PKS 1502+106
Shao, Xi, **Jiang, Yunguo***, Chen, Xu, Astrophysical Journal, 2019, 884, 15,
https://ui.adsabs.harvard.edu/abs/2019ApJ...884...15S

November 10, 2017
Near integrability of kink lattice with higher order interactions,**Yunguo Jiang***, Jia-Zhen Liu, Song He, Chinese Physics C, Vol. 41, No. 11 (2017) 113107
DOI: 10.1088/1674-1137/41/11/113107

March 01, 2016
Time-resolved GRB spectra in the complex radiation of synchrotron and Compton processes,
**Jiang, Y. G.*, Hu, S. M.*, Chen, X.***, Li, K., Guo, D. F., Li, Y. T., Li, H. Z., Zhao, Y. Y., Lin, H. N.,Chang, Z., Monthly Notices of the Royal Astronomical Society, 2016, 456, 3386
https://ui.adsabs.harvard.edu/abs/2016MNRAS.456.3386J

January 01,2014
Polarization of Photons Scattered by Electrons in Any Spectral Distribution
Chang, Zhe, **Jiang, Yunguo*,** Lin, Hai-Nan, Astrophysical Journal,2014, 780, 68,
https://ui.adsabs.harvard.edu/abs/2014ApJ...780...68C

February 1, 2014

Mass deformed world-sheet action of semi local non-Abelian vortices.**Yunguo Jiang***, Journal of High Energy Physics, 02 (2014) 039.
https://link.springer.com/article/10.1007/JHEP02(2014)039

May 6, 2013
Gamma-ray polarization induced by cold electrons via Compton processes. Zhe Chang,**Yunguo Jiang***and Hai-Nan Lin, Astrophysical Journal, 2013,769: 70.
https://iopscience.iop.org/article/10.1088/0004-637X/769/1/70

2013
Anomalous spin of the Chern-Simons-Georgi-Glashow Model. Qiuhong Huo,**Yunguo Jiang*,** Ruzhi Wang and Hui Yan, Chinese Physics C, 2013, 37 (4): 043104.
DOI: 10.1088/1674-1137/37/4/043104

January 2013
Non-Abelian vortices in the emergent gauge theory of the Hubbard model. Qiuhong Huo,**Yunguo Jiang***,Ruzhi Wang and Hui Yan, Europhysics Letters, 2013, 101: 27001.
doi: 10.1209/0295-5075/101/27001

April 27 2012
A unified constraint on the Lorentz invariance violation from both short and long GRBs. Zhe Chang, **Yunguo Jiang*** and Hainan Lin, Astroparticle Physics, 2012, 36: 47-50.
https://doi.org/10.1016/j.astropartphys.2012.04.006

October 29 2012
Constraining the Bulk Lorentz Factor of GRB Outow in the Magnetic-dominated Jet Model. Zhe Chang, Hainan Lin and Yunguo Jiang*, **Astrophysical Journal**, 2012, 759: 129.
https://iopscience.iop.org/article/10.1088/0004-637X/759/2/129

December 15 2011
Vortices and monopoles in mass-deformed SO and USp gauge theories. M. Eto, T. Fujimori, S. B. Gudnason, **Y. G. Jiang,** K. Konishi, M. Nitta and K. Ohashi, JHEP12 (2011) 017.
doi:10.1007/JHEP12(2011)017

November 11 2010
Group theory of Non-Abelian Vortices. M. Eto, T. Fujimori, S. B. Gudnason,**Y. G. Jiang,** K. Konishi, M. Nitta and K. Ohashi, *JHEP* 11 (2010)042
doi:10.1007/JHEP11(2010)042

August 03 2010

Non-Abelian vortex dynamics: effective world-sheet action. S. B. Gudnason, **Y. G. Jiang** and K. Konishi, JHEP 08 (2010) 012.
doi:10.1007/JHEP08(2010)012