

杨晓菲：研究员（博导）

基本情况

- 2019 年，入选国家青年千人计划
- 2019 年，获国际纯粹与应用物理联合会青年科学家奖
- 2017 年至今，北京大学物理学院技术物理系（核物理与核技术国家重点实验室）研究员
- 2017 年至今，英国曼彻斯特大学客座研究员
- 2014 年至 2017 年，比利时鲁汶大学（欧洲核子中心 ISOLDE），博士后
- 2011 年至 2014 年，日本理化学研究所仁科中心，联合培养博士（IPA）
- 2009 年至 2014 年，北京大学物理学院，博士
- 2005 年至 2009 年，兰州大学核科学与技术学院，学士

研究方向：实验核物理

原子核的基本性质是核物理研究的基石，在核结构，核有效相互作用等基础研究中不可或缺，尤其是在广阔的不稳定核区更是亟待开拓，被列入目前国际国内新一代核物理大科学装置的主要科学目标之一。我们的主要研究领域是利用多学科交叉的精密激光核谱技术来精确测量不稳定原子核的基本性质，从而探索和认知不稳定原子核中展现出来的新物理现象。主要工作包括：发展高分辨高灵敏度的激光核谱技术；利用欧洲核子中心 ISOLDE 放射性束流线上的共线激光谱和共线共振电离谱设备进行不稳定核素的基本性质测量等。

教学：

主讲本科生核心课程《核物理与粒子物理导论》（国家精品课程）

讲授研究生专业课程《核反应与衰变》

联系方式

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代表性大会特邀报告:

- 2019: 27th International Nuclear Physics Conference (INPC 2019), Scottish Event Campus, Glasgow, UK, 29 July–2 August;
- 2018: Northeastern Asian Symposium on Nuclear Physics in the 21st Century, Nagoya, Japan, September 18–21, 2018;
- 2018: Nuclear Structure 2018, East Lansing, MI, USA, August 5–10,
- 2017: The International Symposium on Physics of Unstable Nuclei (ISPUN2017) Hanoi, Vietnam, September 25–30, 2017;
- 2017: NUSTAR Annual meeting 2017. GSI, Darmstadt, Germany February 27–March 2, 2017;
- 2016: The 12th International Conference on Stopping and Manipulation of Ions and related topics (SMI-2016), Lanzhou, China, 08–10, June, 2016;
- 2016: X International Workshop on application of lasers and storage devices in atomic nuclei research (Laser2016), Poznan, Poland, 16–19, May, 2016;

代表性论文:

- Precision charge radii of potassium isotopes: Towards resonance laser ionization spectroscopy of lighter atomic systems. A. Koszorus, X.F. Yang* et al., submitted to Physical Review C (2018)
- Nuclear charge radii of $^{62-80}\text{Zn}$ and their sensitivity to cross-shell proton excitations L. Xie, X.F. Yang* et al., submitted to Physics letters B (2019)
- Investigating the abnormal deformation of the $5/2^+$ isomeric state in ^{73}Zn : indicator for triaxiality. X.F. Yang* et al., Physical Review C 97, 044324 (2018)
- Evolution of nuclear structure in neutron-rich odd-Zn isotopes and isomers. C. Wraith, X.F. Yang* et al., Physics letters B 771, 385 (2017).
- Isomer shift and magnetic moment of the long-lived $1/2^+$ isomer in ^{79}Zn : signature of shape coexistence near ^{78}Ni . X.F. Yang* et al., Physical Review letters 116, 182502 (2016) (Highlighted as Editor's suggestion)
- Laser-RF double resonance spectroscopy of $^{84-87}\text{Rb}$ isotopes trapped in superfluid helium. X.F. Yang* et al., Physical Review A 90, 052516 (2014)

- Control of stopping position of radioactive ion beam in superfluid helium for laser spectroscopy experiments. X.F. Yang* et al., Nucl. Instr. and Meth. in Phys. Res. B 317, 599 (2013)
- Precision measurement of laser RF double resonance spectra with an effective compensation of residual magnetic field. X. F. Yang* et al., Hyperfine Interactions 227, 147 (2014)
- Novel nuclear laser spectroscopy method using superfluid helium for measurement of spins and moments of exotic nuclei. T. Furukawa, T. Wakui, X.F. Yang et al., Nucl. Instr. and Meth. in Phys. Res. B 317, 590 (2013)
- Precision Laser Spectroscopy Technique for Exotic Radioactive Beams at CERN-ISOLDE. X.F. Yang*, Journal of Physics: Conference Series 1024, 012031 (2018)

合作代表性文章

- A new beamline for laser spin-polarization at ISOLDE; W. Gins et al., Nuclear Inst. and Methods in Physics Research A 925, 24 (2019)
- Interplay between nuclear shell evolution and shape deformation revealed by the magnetic moment of ^{75}Cu ; Y. Ichikawa et al., Nature Physics 15, 321 (2019)
- Multi-photon ionization of accelerated laser-ablated ions: exploring physics over a wide range of energy scales; R.F. Garcia Ruiz et al., Physical Review X 8, 041005 (2018)
- Nuclear moments of the low-lying isomeric 1^+ state of ^{34}Al : Investigation on the neutron $1\text{p}_{1/2}$ excitation across $N = 20$ in the island of inversion; Z.Y. Xu et al., Physics Letters B 782, 619 (2018)
- Proton single particle energies next to ^{78}Ni : Spectroscopy of ^{77}Cu via single proton knock-out reaction; Zs. Vajta et al., Physics Letters B 782, 99 (2018)
- The nuclear magnetic moment of ^{208}Bi and its relevance for a test of bound-state strong-field QED; S. Schmidt et al., Physics Letters B 779, 324 (2018)
- Laser-spectroscopy studies of the nuclear structure of neutron-rich radium; K. M. Lynch et al., Physical Review C 97, 024309 (2017)
- Probing the ^{31}Ga ground-state properties near the $Z = 28$ region with high-resolution laser spectroscopy; G. J. Farooq-Smith et al., Physical Review C 96, 044324 (2017)
- Dipole and quadrupole moments of $^{73-78}\text{Cu}$ as a test of the robustness of the $Z = 28$ shell closure near ^{78}Ni ; R.P. de Groote et al., Physical Review C 96, 041302(R) (2017)

- Quadrupole moment of ^{203}Fr ; S.G.Wilkins et al., Physics Review C 96, 034317(2017)
- Changes in nuclear structure along the Mn isotopic chain studied via charge radii; H Heylen, et al, Physical Review C 94, 054321(2016)
- Laser and decay spectroscopy of the short-lived isotope Fr 214 in the vicinity of the $N = 126$ shell closure; Gregory James Farooq-Smith et al., Physical Review C 94, 054305(2016)
- Quadrupole Moments of odd-A $^{53-63}\text{Mn}$: Strong Onset of Collectivity towards $N = 40$. C. Babcock et al ., Physics Letters B 760, 387 (2016)
- Investigating nuclear shell structure in the vicinity of ^{78}Ni : Low-lying excited states in the neutron-rich isotopes $^{80,82}\text{Zn}$. Y. Shiga et al., Physical Review C 93, 024320 (2016)
- Combined high-resolution laser spectroscopy and nuclear decay spectroscopy for the study of the low-lying states in ^{206}Fr , ^{202}At , and ^{198}Bi . K.M. Lynch et al., Physical Review C 93, 014319 (2016)
- High-resolution laser spectroscopy with the Collinear Resonance Ionization Spectroscopy (CRIS) experiment at CERN-ISOLDE. T.E. Cocolios et al., Nucl. Instr. and Meth. in Phys. Res. B 376, 284(2015)
- Use of a Continuous Wave Laser and Pockels Cell for Sensitive High-Resolution Collinear Resonance Ionization Spectroscopy. R.P. de Groote et al., Physical Review Letters 115, 132501 (2015)