

胡济民教育科学奖

极强电磁场和涡旋环境中的 极端QCD物质

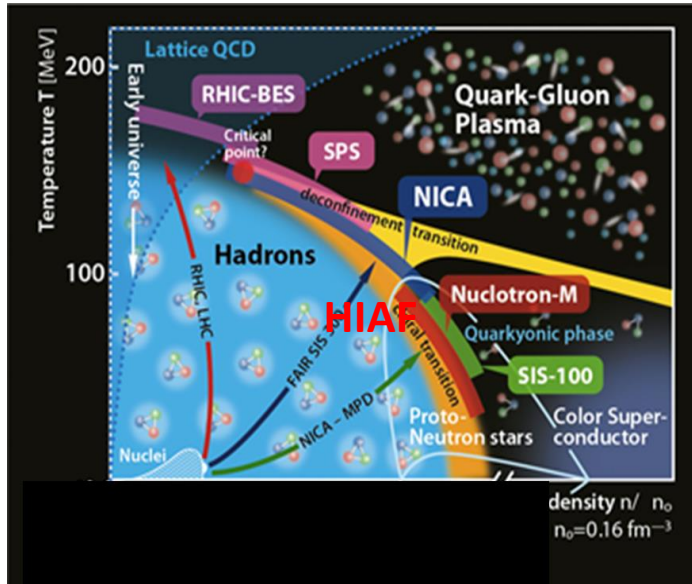
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2019年10月9日，武汉

个人经历

- 2003年，清华大学，学士学位
- 2008年，清华大学，博士学位
- 2008年-2012年，德国法兰克福大学（Frankfurt University），博士后
- 2012年-2013年，美国印第安纳大学（Indiana University），博士后
- 2013年-今，复旦大学，青年研究员，教授

极端QCD物质与相对论重离子碰撞

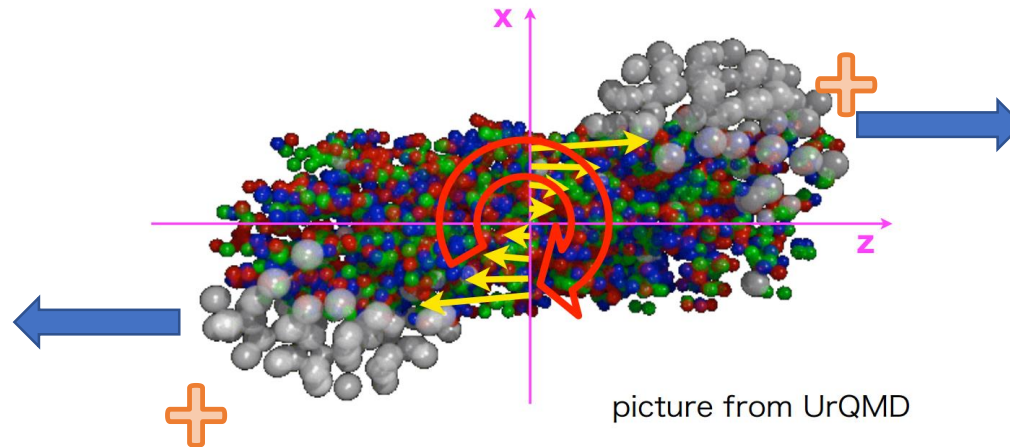


QCD phase diagram on T-n plane



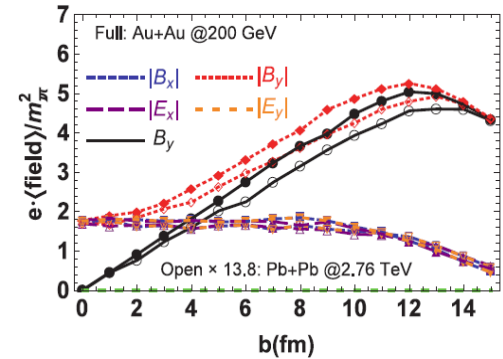
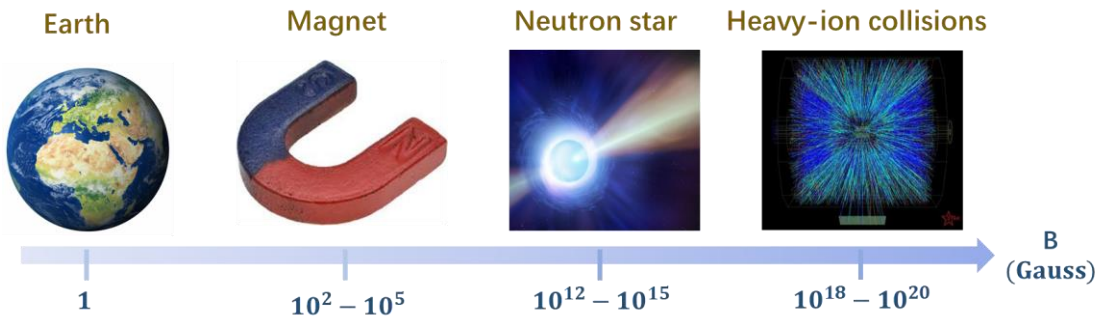
Highest artificial temperature

<https://www.guinnessworldrecords.com/world-records/highest-man-made-temperature>



重离子碰撞中的电磁场与流体涡旋

Strongest magnetic field

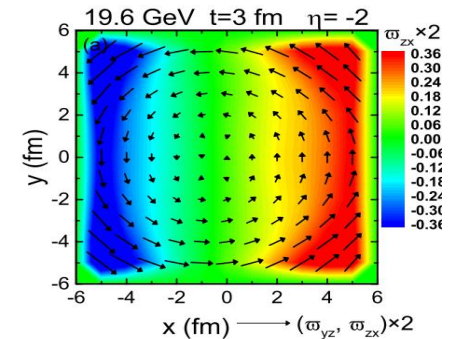
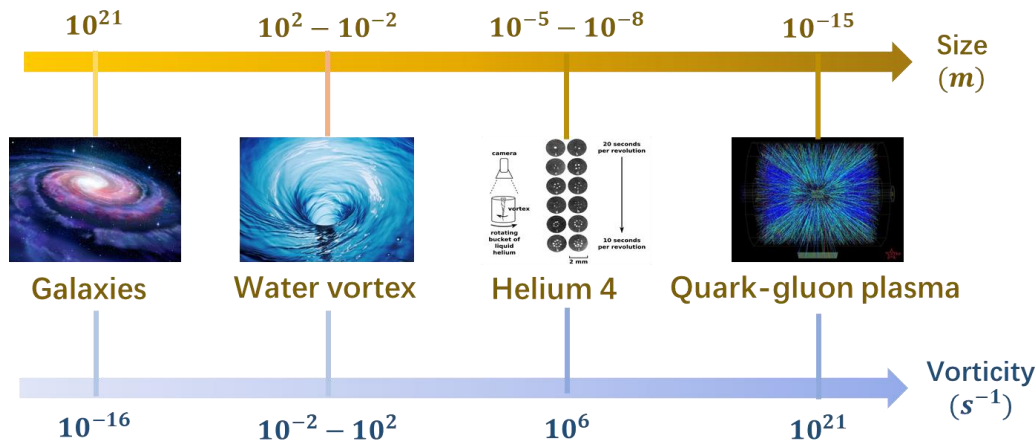


Deng, XGH 2012

Bloczynski, XGH, Zhang, Liao 2013

XGH 2016

The most vortical fluid

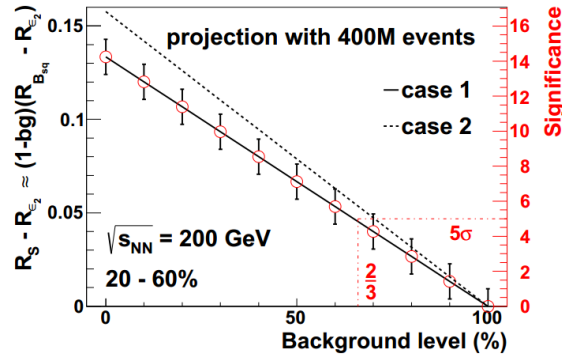


Deng, XGH 2016

Wei, Deng, XGH 2018

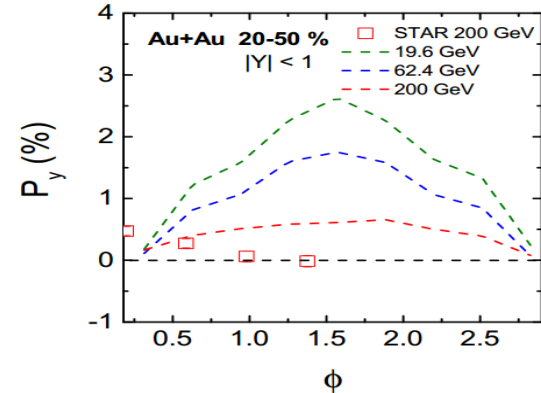
电磁场与流体涡旋中的新奇量子现象

Isobar collisions for chiral magnetic effect (RHIC 2018)



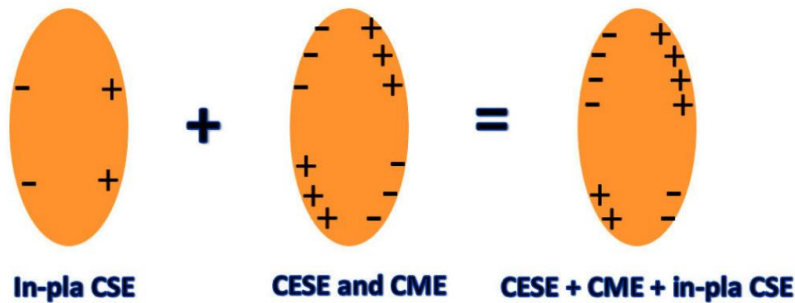
Deng, XGH, Ma, and Wang, PRC 2016

Spin polarization (Liang, Wang 2004 RHIC 2018)



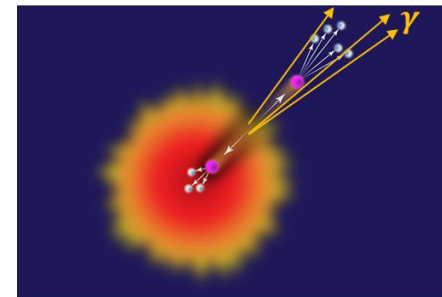
Wei, Deng, XGH PRC 2018, Hattori, XGH, et al PLB 2019, Xia, Li, XGH, Huang PRC 2019

Chiral electric separation effect



XGH, Liao PRL 2013

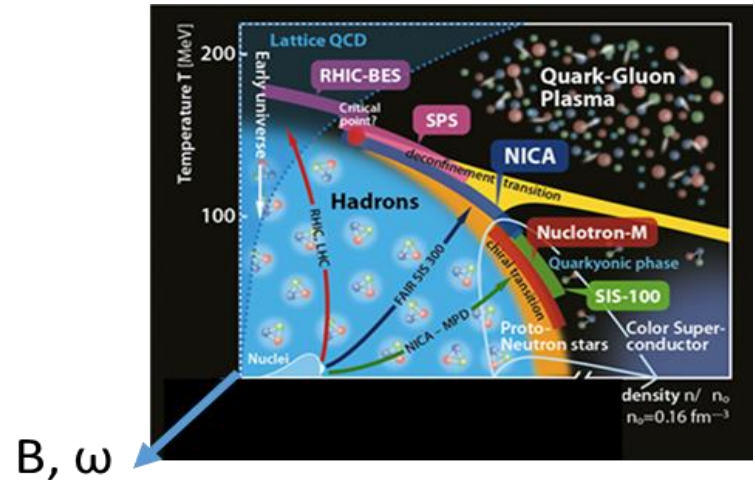
Chiral transition radiation



XGH, Tuchin PRL 2018

电磁场与流体涡旋中的新奇量子现象

- ◆ Φ and K Spin alignment,
- ◆ Chiral vortical effect, chiral vortical wave*,
- ◆ Rotational magnetic inhibition*, rotational chiral soliton lattice*,
- ◆ Chiral separation effect, chiral magnetic wave,
- ◆ (Inverse) Magnetic catalysis of ChSB,
- ◆ EM-induced directed flow, EM-induced pion condensate*, Hall effect, photon elliptic flow, photoproduction of hadrons, anisotropic pressure and viscosities*, broadening of dilepton spectrum, vacuum birefringence,



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谢谢大家！