

李 醒教授----客座、博导

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李醒博士个人简历

1) 学历

1982. 9—1987. 7, 中国科大近代物理系等离子体物理专业学习, 获学士学位
1987. 9—1990. 7, 中国科大近代物理系等离子体物理专业学习, 获硕士学位
1993. 9—1998. 3, 中国科大地球与空间科学系空间物理专业学习, 获博士学位, 导师是胡友秋教授。
1995. 10—1998. 3, 获哈佛大学天体物理中心(Harvard-Smithsonian Center for Astrophysics)博士前奖学金, 前往深造, 师从Shadia R. Habbal教授, 完成博士学位论文。

2) 工作经历

1990. 7—1995. 10, 中国科学技术大学地球与空间科学系空间物理专业任助教和讲师。
1998. 4—2001. 3, 哈佛大学天体物理中心博士后。
2001. 4—现在, 英国威尔士大学 (University of Wales, Aberystwyth) 数理学院任讲师 (已获终身职位)。

3) 获奖情况

- 博士论文“太阳风高速流中重离子的研究”获2000年度全国百篇优秀博士论文奖
- 太阳风的加热和加速获得2001年度 安徽省自然科学奖二等奖, 获奖人胡友秋、李醒。

4) 科研项目

2001. 4 - 2004, 主要项目参加者, 哈佛大学天体物理中心NASA 课题NAG5-10873 2002. 4 - 现在, 英国粒子物理与天文学研究理事会(PPARC)对威尔士大学的滚动支持项目的主要参加者, 太阳与太阳风子课题的负责人。

5) 主要学术成绩

长期从事日地物理理论和数值模拟研究, 在国际权威学术刊物上发表论文30余篇, 被引用500余次, 其中第一作者文章被引用250余次(他引近200次)。通过研究内日冕中氧离子受到日面碳离子谱线多普勒泵激现象, 发现在3个太阳半径, 氧离子不仅速度可达到370公里每秒, 超过了质子的速度, 并有较大的温度各向异性, 该项研究极大地增强了SOHO卫星上的紫外光谱仪(UVCS)对太阳风速度的探测能力。创建了新的太阳风模型, 从而能够计算粒子热传导从碰撞占优势区到无碰撞行星际空间的自恰过渡, 从而更准确地模拟太阳风粒子温度各向异性的空间演化。提出了新的高频斜磁声波对太阳风粒子的加热理论。建立了磁流体湍流在日冕磁场闭合区加热的模型。建立了三成分太阳风全球模型, 该模型表明在太阳风的源区, 即使在低速太阳风中库仑耦合也不足以把少数离子带离太阳。发现太阳自转和低频阿尔芬波对太阳风中的少数离子和质子间的速度差有很强的调制作用。

6) 发表论文 (*表示为主要论文):

- 1*.Bo Li and Xing Li, Propagation of non-WKB Alfvén waves in a multi-component solar wind with differential ion flow, *Astrophysical Journal*, in press, 2007.
- 2*.Bo Li, X. Li and N. Labrosse, A global 2D solar wind model with alpha particles, *J. Geophys. Res.*, 111, A08106, doi:10.1023/2005JA01130, 2006.
- 3*.Labrosse,N.,X.Li, and B. Li, On the Lyman alpha and Lyman beta in solar coronal streamers, *Astronomy & Astrophysics*,455:719-723, 2006.
- 4*.I. O’Neill, X. Li, Coronal loops heated by turbulence-driven Alfvén waves -- a two fluid model, *Astron. & Astrophys.*, 435, 1159, 2005.
- 5*.X. Li and S.R. Habbal, Hybrid simulation of ion cyclotron resonance in the solar wind: evolution of velocity distribution functions, *J. Geophys. Res.*, 110, A10109, doi:10.1029/2005JA011030, 2005.
- 6*.Y. Chen and X. Li, An ion-cyclotron resonance driven three-fluid model of the slow wind near the Sun, *Astrophys. J.*, 609, L41, 2004.
- 7*.B. Li, X. Li, Y-Q Hu, S.R. Habbal, A 2D Alfvén-wave driven solar wind model with proton temperature anisotropy, *J. Geophys. Res.*, 119, doi10.1029/2003JA010313, 2004.
- 8*.X. Li, Shadia Habbal, Coronal loops heated by turbulence-driven Alfvén waves, *Astrophys. J.*, 598, L125, 2003.
- 9*.X. Li, Transition region, coronal heating and the fast solar wind, *Astron. & Astrophys.*, 406, 345, 2003.
- 10*.X. Li, Heating in Corona Funnels by Ion Cyclotron Waves, *Astrophys. J.*, 571, L67, 2002.
- 11.Quanming Lu and Xing Li, heating of ions by low-frequency Alfvén waves, *Physics of Plasmas*, in press, 2007.
- 12.Bo Li, Shadia R. Habbal and Xing Li, Angular momentum transport and proton-alpha differential streaming in the solar wind, *Astrophysical Journal*, in press, 2007.
- 13.B. Li and X. Li, Effects of α particles on the angular momentum loss from the Sun, *Astronomy & Astrophysics*, 456, 359, 2006.
- 14.B. Li, and X. Li, Alfvénic-turbulence-heated magnetic loops:effects of lateral expansion and magnetic twist, *Philosophical Transactions of the Royal Society A*, 364 (1839):533, 2006.
- 15.B. Li, S.R. Habbal, X. Li, C. Mountford, Effect of the latitudinal distribution of temperature at the

- coronal base on the interplanetary magnetic field configuration and the solar wind flow, *J. Geophys. Res.*, 110, A12112, doi:10.1029/2005JA011332, 2005.
16. H. Morgan, S. Rifai Habbal, and X. Li, Hydrogen Lyman Alpha Intensity Oscillations Observed by UVCS/SOHO, *Astrophys. J.*, 605, 521, 2004.
17. Y. Q. Hu, X. Li, S. R. Habbal, A 2.5 dimensional MHD Alfvén-wave-driven solar wind model, *J. Geophys. Res.*, 108, doi:10.1029/2003JA009889, 2003.
18. Y. Q. Hu, S. R. Habbal, Y. Chen, X. Li, Are coronal holes the only source of fast solar wind at solar minimum?, *J. Geophys. Res.*, 108, doi:10.1029/2002JA009776, 2003.
19. C. J. Mountford, S. H. Habbal, X. Li, Effect of solar wind flow geometry on solar wind parameters at 1AU, *J. Geophys. Res.*, 108, DOI 10.1029/2002JA009525, 2003.
20. X. Li and S. R. Habbal, Damping of fast and ion-cyclotron oblique waves in the multi-ion fast solar wind, *J. Geophys. Res.*, 106, 10669, 2001.
21. X. Li and S. R. Habbal, Electron kinetic firehose instability, *J. Geophys. Res.*, 105, 27,377, 2000
22. L. A. Allen, S. R. Habbal, and X. Li, Thermal couplings of protons and neutral hydrogen with anisotropic temperatures in the fast solar wind, *J. Geophys. Res.*, 105, 23,123, 2000.
23. X. Li and Habbal, Proton/alpha magnetosonic instability in the fast solar wind, *J. Geophys. Res.*, 105, 7495, 2000.
24. X. Li, S. R. Habbal, J. V. Hollweg, and R. Esser, Heating and cooling of protons by turbulence-drive ion cyclotron waves in the fast solar wind, *J. Geophys. Res.*, 104, 2521, 1999.
25. X. Li, and S. R. Habbal, Ion cyclotron waves, instabilities and solar wind heating, *Solar Physics*, 190, 485, 1999.
26. S. R. Cranmer, ..., X. Li, et al., An Empirical Model of a Polar Coronal Hole at Solar Minimum, *Astrophys. J.*, 511, 481, 1999.
27. X. Li, Proton temperature anisotropy in the fast solar wind: A 16-moment bi-Maxwellian model, *X. Li, J. Geophys. Res.*, 104, 19,773, 1999.
28. X. Li, A 16-moment fast solar wind model, *Space Sci. Rev.*, 87, 253, 1999.
29. Y. Q. Hu, S. R. Habbal, and X. Li, On the Cascade Processes of Alfvén Waves, *J. Geophys. Res.*, 104, 24819, 1999.
30. X. Li, Proton temperature anisotropy in the fast solar wind: A 16-moment bi-Maxwellian model, *X. Li, J. Geophys. Res.*, 104, 19,773, 1999.
31. X. Li, S. R. Habbal, J. Kohl and G. Noci, The effect of temperature anisotropy on observations of Doppler dimming and pumping in the inner corona, *Astrophysical J.*, 501, L133, 1998.
32. J. L. Kohl, ..., X. Li, et al., UVCS/SOHO Empirical Determinations of Anisotropic Velocity Distributions in the Solar Corona, *Astrophysical J.*, 501, L127, 1998.
33. X. Li, R. Esser, S. Habbal, Y. Q. Hu, Influence of heavy ions on the high speed solar wind, *J. Geophys. Res.*, 102, 17419, 1997.
34. Y. Q. Hu, L. D. Xia, X. Li, et al., Evolution of Magnetic Helicity in Magnetic Reconnection, *Solar Physics*, 170, 283, 1997.

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