MARK A. WEBER, Ph.D.

Curriculum Vitae

Solar Physicist
Department of Physics, Montana State University
P.O. Box 173840, Bozeman, MT 59717-3840
Phone 406-994-7375, **Fax** 406-994-4452
Email weber@physics.montana.edu
Home Page http://solar.physics.montana.edu/weber/

EDUCATION

1999	**Ph.D.** in Physics, Montana State University—Bozeman Dissertation: "Rotation Patterns in the Large-Scale Solar Corona" Abbreviated Abstract: The solar corona can be imaged by its thermal emission in the soft X-ray spectrum ($\sim$ 1 keV). Data from the *Yohkoh*/Soft X-ray Telescope are used to measure the rotation profile of the corona as a function of latitude according to a "significant components" model. An analysis of polar coronal hole extensions gives a concrete demontration of how the apparent coronal rotation rates at high latitudes are dependent upon the history of flux eruptions at other latitudes. Finally, the role of differential rotation in producing axial fields in quiescent prominences is re-examined.
1995	**M.S.** in Physics, Montana State University—Bozeman
1991	**B.S.** in Physics with Honors, Harvey Mudd College
1989-90	Physics student, Lincoln College, Oxford University, UK
1987	Valedictorian, Moore High School, Moore, OK

SCIENTIFIC EXPERIENCE

Research	Coronal differential rotation; large-scale structure and evolution of magnetic fields in the solar atmosphere; prominence structure and formation; solar wind and heliosphere.

Service	*Yohkoh* **Soft X-ray Telescope (SXT) Chief Observer**, ISAS, Japan, 1995–1999. This duty (rotated among members of the SXT Chief Observer Team) included: responsibility for maintenance and operation of the SXT instrument on a daily basis, planning and use of observing sequence tables, coordination with Yohkoh satellite operations and other Yohkoh instruments, organized co-operation with other instrument groups (e.g., SoHO, TRACE, etc.) for coordinated observing campaigns, various periodic reports regarding SXT's performance and condition, participation in the Yohkoh satellite's operational duties, and support for visiting scientists with SXT data analysis.
	Deputy Chairman of Local Organizing Committee for AGU Chapman Conference, "Coronal Mass Ejections: Causes and Consequences", Bozeman, 1996.
	Co-Editor for Proceedings of IAU Symposium 195, "Highly Energetic Physical Processes and Mechanisms for Emission from Astrophysical Plasmas", eds. P.C.H. Martens, S. Tsuruta, and M.A. Weber.

SCIENTIFIC INTERESTS

Research	Large-scale structure and evolution of magnetic field patterns in the solar atmosphere; solar dynamo and activity cycle; prominence formation and eruption; coronal mass ejections.
Service	Participation in operations and data reduction for solar observing instruments, especially UV and X-ray observations of the solar atmosphere; public outreach projects; organization of scientific conferences. Willing to travel.

SCIENTIFIC AFFILIATIONS

1999	American Geophysical Union (AGU), Section of Space Physics and Aeronomy, Solar and Heliospheric Physics
1995	American Astronomical Society, Solar Physics Division (SPD)

PAPERS and PUBLICATIONS

- "Axial Fields in Quiescent Prominence", **M.A. Weber** and P.C.H. Martens, submitted to the *Astrophysical Journal—Letters.*
- "Bimodal Behavior in Solar Rotation Rates", **M.A. Weber** and D.W. Longcope, submitted to *Solar Physics.*
- "A Method for Characterizing Rotation Rates in the Soft X-Ray Corona", **M.A. Weber**, L.W. Acton, D. Alexander, S. Kubo, and H. Hara, 2000, *Solar Physics*, in press (accepted 16-Sep-99).
- "Coronal X-ray Brightness and Photospheric Magnetic Field: A Study in Correlations", R. Wolfson, C.B. Roald, P.A. Sturrock, and **M.A. Weber**, submitted to the *Astrophysical Journal.*
- "An Analytic Model of an Isothermal Solar Wind Plasma Interacting with a Neutral Interstellar Component", **M. Weber**, 1998, in: "Plasma Physics in Solar and Astrophysical Settings" (Term papers for Plasma Physics course at Montana State Univ in Fall 1997), D. Longcope, ed.
- "Differential Rotation Rates in the Soft X-Ray Solar Corona", **M.A. Weber**, D. Alexander, and L.W. Acton, 1997, *Memorie della Societa Astronomica Italiana*, vol. 68 - n.2 (Proceedings of The 2nd Napoli Thinkshop on Physics and Astrophysics: The Inconstant Sun).
- "Solar Origin of the 26-Day Periodicity Observed by Ulysses", T. Bai, J.T. Hoeksema, **M. Weber**, L.W. Acton, 1997, *Journal of Geophysical Research* **102**, 9793.

SCIENTIFIC MEETINGS ATTENDED

1998	AGU/SPD, Boston. **Poster**: "Emission Levels of the Diffuse and Inter-Active-Region Corona in Soft X-rays", **M.A. Weber** and L.W. Acton.
1997	SPD, Bozeman.
1996	AGU Chapman Conference, "Coronal Mass Ejections: Causes and Consequences"
1996	The 2nd Napoli Thinkshop on Physics and Astrophysics: The Inconstant Sun, Naples, Italy. **Poster**: "Differential Rotation Rates in the Soft X-Ray Solar Corona", **M.A. Weber**, D. Alexander, and L.W. Acton.

1995	Workshop in Honor of T. Hirayama, ISAS, Japan.
1995	SPD, Memphis. **Poster**: "Differential Rotation in the Solar Corona", **M. Weber**, D. Alexander, and L.W. Acton.
1994	Third SoHO Workshop: Solar Dynamic Phenomena and Solar Wind Consequences, Estes Park. **Poster**: "Differential Rotation in the Solar Corona", **M.A. Weber**, L.W. Acton, D. Alexander.

COMPUTER EXPERIENCE

Systems	**Experienced** with Unix (DEC Alphas, BSD) and Linux systems. **Familiar** with Macintosh and Windows95.
Languages	**Experienced** with IDL, SolarSoft, LaTeX, Pascal. **Familiar** with C, HTML, and FORTRAN.

AWARDS and SCHOLARSHIPS

1996	**Studentship Award** – Second Napoli Thinkshop on Physics and Astrophysics: "The Inconstant Sun"
1995	**Studentship Award** – American Astronomical Society, Solar Physics Division (SPD)
1994–97	**Montana Space Grant Fellowship**
1991–99	**Seifert Scholarship** – Physics Department Award, Montana State University
1992	**Honorable Mention** – National Science Foundation Graduate Fellowship
1989	**Exchange Program** – Harvey Mudd College with Lincoln College, Oxford University (only one awardee per junior class)
1987	**National Merit Scholar**
1987	**Academic All-State** – Oklahoma
1987	**Valedictorian** – Moore High School, OK