

Vassar College Observatory
Department of Physics and Astronomy
Poughkeepsie, New York 12604

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This report covers the period from September 1996 to August 1997.

1. PERSONNEL

The astronomy faculty at Vassar College is part of the Department of Physics and Astronomy and includes associate professor Frederick R. Chromey, Director of the Observatory, and Debra Meloy Elmegreen, Maria Mitchell Professor of Astronomy. Sophie Yancopoulos was a visiting assistant professor as Elmegreen's sabbatical replacement this year. In May 1996, a total of 7 seniors graduated with degrees in astronomy (1), and physics (6). There were 11 juniors and 13 sophomores in the department.

2. EQUIPMENT

The College dedicated the Class of 1951 Observatory in May 1997. Instruments include a 20-inch telescope manufactured by Optomechanics, Inc. and an 8-inch refractor. A third dome will house a 32-inch telescope manufactured by DFM, Inc., to be completed in January 1998, and we plan to install an 8-inch coelostat in the roof of the main building. Updates can be viewed via <http://noether.vassar.edu/Astronomy.html>.

3. RESEARCH

Chromey and Elmegreen continued their research on several aspects of spiral galaxies and star formation. Chromey and Elmegreen, together with undergraduate students M. Santos and D. Marshall (Colgate), completed J and K-band observations of circumnuclear rings with the KPNO 2.1m telescope. They determined colors, masses, and ages of hotspots in NGC 3351, NGC 3504, and NGC 5248, and found that the star formation rates in the rings scale with galaxy mass. Elmegreen continued collaboration with J. Salzer (Wesleyan U.) on star-forming complexes in nearby spiral and irregular galaxies. Elmegreen and M. Regan (Univ. of Maryland) completed a K-band study of bars in early-type southern spirals, which was a continuation of barred galaxies studies by Elmegreen, Chromey, B. Elmegreen (IBM), D. Hasselbacher, and B. Bissell in which bar profiles and isophotal twists were measured. A faint outer ring of star formation was also discovered in the prototypical barred galaxy NGC 1300.

Elmegreen completed a radio and optical study of the in-

teracting galaxy pair NGC 2535/36, and continued HST observations of IC 2163/NGC 2207, with collaborators M. Kaufman (Ohio State U.), C. Struck (Iowa State U.), E. Brinks (VLA), B. Elmegreen, M. Thomasson (Onsala), and M. Klaric (Midlands Technical College).

Student C.O. Johnson completed a senior thesis on optical observations of the interacting galaxy NGC 520. Chromey, Elmegreen, and student M. Vogelaar observed faint outer structure in nearby spirals and tidally disturbed galaxies using the KPNO Burrell-Schmidt telescope. They also observed flocculent spiral galaxies in K-band using the KPNO 2.1m telescope with C.O. Johnson.

Chromey and Hasselbacher completed a study of the twilight and dark sky for purposes of flat field calibrations.

Yancopoulos worked with students M. Santos, B. Knowles, and A. Bender on a search for blue stragglers in M3, based on observations in V and I band by Chromey and Elmegreen at the KPNO Burrell-Schmidt telescope.

Elmegreen completed an undergraduate intermediate-level textbook, "Galaxies and Galactic Structure," published through Prentice Hall.

Undergraduates participated in several summer research programs: M. Vogelaar was at the Lunar and Planetary Lab, J. Golub was at the U. Michigan REU site, and the following students participated in the Keck Northeast Astronomy Consortium exchange: J. Sawyer was at Wellesley College, B. Bissell was at Williams College, and M. Santos and E. Condy were at Wesleyan U. K. Corrado from Colgate and K. Antypas from Wellesley were Keck visiting students. B. Knowles, A. Bender, and K. Eberwein participated in the Vassar Undergraduate Research Summer Institute with Chromey and Elmegreen.

4. MEETINGS

Chromey and Elmegreen traveled with 10 students in October 1996 to Wellesley College for the 7th annual Keck Northeast Astronomy Consortium Research Symposium for students from the member institutions who participated in summer research. Chromey and students traveled to the MARS meeting for student research at Smith College in April 1997.

Debra Meloy Elmegreen and Frederick R. Chromey