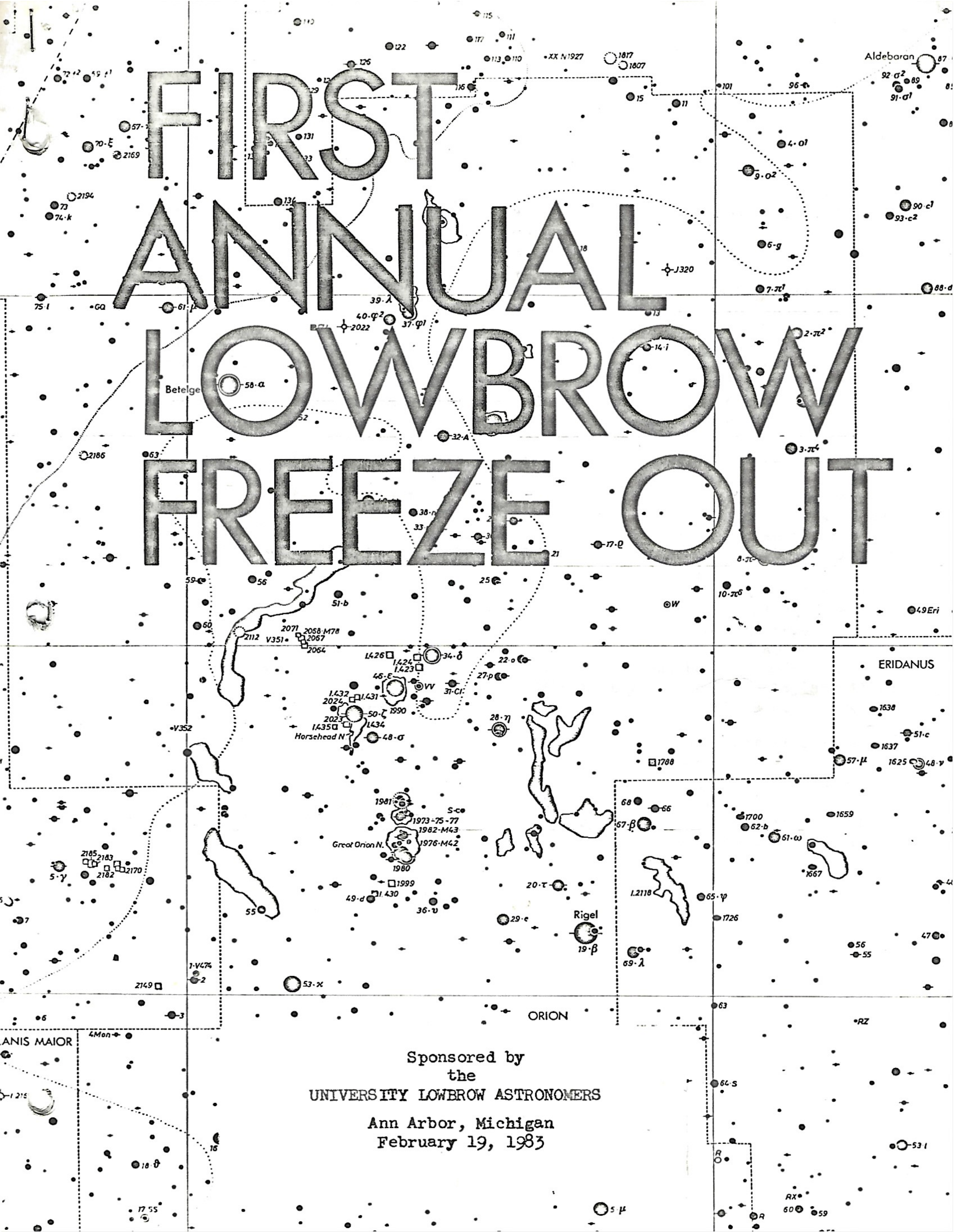


# FIRST ANNUAL LOWBROW FREEZE OUT



Sponsored by  
the  
UNIVERSITY LOWBROW ASTRONOMERS  
Ann Arbor, Michigan  
February 19, 1983



## W E L C O M E !

The University Lowbrow Astronomers wish to extend to all fellow amateur astronomers a warm welcome to the first annual Lowbrow Freeze-Out. We hope you enjoy the varied activities planned for today's meeting and hope you you'll tell your friends and colleagues about our convention so that they might attend next year's edition. We would like to take this opportunity to tell you a little about the Lowbrows since you've probably heard little or nothing of us before today.

In 1979 Dr. Joseph Patterson, then a post-doc with the University of Michigan Astronomy Department, decided to form an Ann Arbor astronomy club. Our club's name "Lowbrow" was meant to indicate to people in the community that the club's intention was to indulge in other than "highbrow" astronomy characteristic of a university astronomy department.

There have been other astronomy clubs in the past in Ann Arbor. One which comes immediately to mind is the Ann Arbor Amateur Astronomical Association. These clubs were always rather short-lived, however, since they seldom had any real focus and were usually composed largely of university students. Once the active university members graduated the club would either fold or disappear for a few years. The Lowbrows recognized that some focus for club activities was needed to help assure permanence. They also recognized the need for an active core of non-university people to avoid the four-year "seasonal" variations so much a fact of academic life.

Thus perhaps the most significant factor in the early and continued growth and stability of the club has been Peach Mountain Observatory. The observatory is owned by the University and is located 18 miles north-west of Ann Arbor. In 1976 the 52 inch reflector, then located at Peach Mt., was moved to Kitt Peak in Arizona. The department decided it had no use for and could not afford to maintain its other optical telescope at Peach - a 24 inch reflector housed in a roll-off roof building about a quarter mile south of the 85 foot radio telescope. The 24 inch had not been used for at least 5 years when Dr. Patterson suggested an agreement be struck between the astronomy club and the astronomy department. The club would receive full use of the telescope if they could restore and maintain it. WELL - I don't care where you are, but if you're an amateur astronomer and someone makes you an offer like that you take it! And take it we did. In about six months the telescope was in regular use by club members and (except for some short down-times) and has remained in use ever since.

Today the club enjoys a membership of a bit over 40 people, over half of whom are non-students. Our regular monthly meetings are held on second Fridays at 7:30 p.m. in room 5006 Angel Hall, on the U of Michigan campus. The Astroschedule included as part of this program tells of our meetings and star parties for the next few months. We invite you to drop in any time and to keep us informed of your club's activities. The University Lowbrow Astronomers are anxious to become a part of the rekindling interest in astronomy in the Detroit area.

OUR MAILING ADDRESS:      University Lowbrow Astronomers  
                                 MSA Office  
                                 Michigan Union  
                                 Ann Arbor, Michigan    48109

PHONE NUMBERS: ~~Mike Potter (313) 764-3446~~  
~~Doug Nelle (313) 663-2080~~



P R O G R A M

- 10:00 a.m. SWAP SHOP opens - remains open until 6:00 p.m.  
Location: Second floor hall next to the Physics-Astronomy library  
in the Dennison Building
- 10:00 - 12:00 INFORMAL PAPER SESSION AND MOVIES  
Location: room 296 Dennison Building
- 12:00 - 1:00 LUNCH - see the central campus map and description of nearby  
restaurants
- 1:00 - 6:00 MAIN PROGRAM - FORMAL PRESENTATIONS
- 1:00 - 2:00 Dr. Anne P. Cowley, University of Michigan  
"The Black Hole in LMC X-3"
- 2:00 - 2:20 Pete Alway and Jeff Bass, University Lowbrow Astronomers  
"Artsy Meaningless Slide Show"
- 2:20 - 2:50 Joe Brown, Detroit Astronomical Society  
"Astronomical Drawing Techniques"
- 2:50 - 3:30 Don Luttermoser, Wayne State University  
"Solar Flares - Who's to Blame?"
- 3:30 - 4:00 Dave Dorney, University Lowbrow Astronomers  
"Adapting the computer to Meteor Photography"
- 4:00 - 4:45 Frank McCullough, Warren Astronomical Society  
"The Amateur Astronomer - Are There Others Like Us?"
- 4:45 - 5:15 Dr. Orren Mohler, University of Michigan  
"History of the Detroit Observatory"
- 5:15 - 6:00 Tour of Detroit Observatory
- 6:00 - 7:30 DINNER
- 7:30 - ??? IF CLEAR - Observing at Detroit Observatory  
Car caravan to Peach Mtn. Observatory
- IF CLOUDY - Party at the Brown Jug



# Eureka!

## Second black hole found; U-M astronomer on team

By BARRY ROHAN  
Free Press Science Writer

Three astronomers, including one from the University of Michigan, have discovered a stellar black hole outside the Milky Way. It is only the second ever discovered, is bigger than the first, and bolsters astronomers' beliefs that many exist in the universe.

The black hole, detected in the skies over the southern hemisphere, is a collapsing star containing the mass of 10 suns within which gravitational forces are so powerful that light rays are bent back upon themselves and cannot escape.

The discovery was made at an observatory in Chile by the University of Michigan's Anne Cowley and two Canadian colleagues, David Crampton and John Hutchings, of Victoria, British Columbia.

A BLACK HOLE is the invisible remnant of a burned-out star that is collapsing in on itself, compacting its matter and gravitational forces in a form so concentrated that nothing, not even light or radio waves, can escape its grasp.

Theoretically, a black hole continues to grow ever smaller without losing any of its mass. Ultimately it might contain the weight of 10 suns within an infinitesimal geometric point in space before finally disappearing altogether.

The question raised — disappearing where? — has raised serious scientific speculation that black holes might somehow serve as passageways to other universes or as shortcuts to other parts of our own universe.

Although their presence has been long predicted by scientific theorists, and Walt Disney has made a movie about a journey into one, the existence of black holes has

See BLACK HOLE, Page 8A

## 2d black hole backs astronomer theories

BLACK HOLE, from Page 1A

been plagued by some uncertainty that may now be removed.

— "It seemed odd that even though we knew a lot about the nature of stars and the universe, only one black hole had been found," U-M's Cowley said. "Finding a second one almost makes their existence more legitimate, you might say."

THE FIRST black hole was discovered a decade ago within the earth's galaxy, the Milky Way. It was named for Cygnus, the northern constellation within which it lies.

Like the earlier black hole, the new one was found in close orbit around a visible companion star.

The new black hole and its somewhat less massive companion — about the size of six suns — are in our cosmic backyard, as it were. They lie within the galaxy that is our nearest neighbor, only about 180,000 light years from earth — about five times the distance from the earth to the center of the Milky Way.

This black hole is called LMC-X3. It was named for the area of the sky within which it was found — Large Magellanic Cloud, X-ray source three.

The Large Magellanic Cloud is one of two galaxies that appear as "clouds" of stars in southern hemisphere skies. They were first described to Europeans by Ferdinand Magellan, the 16th-Century Portuguese explorer.

The black hole and its companion star are only about seven million miles apart (compared with a distance of 93 million miles between the Earth and the sun), with the black hole orbiting every 41 hours.

WHEN THEY made their discovery, the astronomers were making a systematic study of X-ray sources in the galaxy with the help of a 158-inch optical telescope at Cerro Tololo Inter-American Observatory, near La Serena, Chile.

Although the black hole is invisible, its presence can be inferred by powerful X-rays emitted by hot gases swirling about it and by its gravitational effect on the orbital patterns of its companion star.

Since no one will ever be able to see one, Cowley said, the problem of identifying a black hole is something like trying to find an elephant by feeling in the dark.



# UNIVERSITY OF MICHIGAN ASTROSCHEDULE, EDITION 34

## Astronomy / Space Events, OPEN TO EVERYONE, 1983 January to April

FOR COPIES OF THIS EDITION (#34) OR FUTURE ONES (#35 May-August, #36 September-December, etc.; three per year) please send a separate SASE (self-addressed stamped envelope) for each edition you want to U-M Exhibit Museum, ATTN AstroSchedules, 1109 Geddes, Ann Arbor, MI 48109. In the lower left corner of each SASE, mark the edition number (and number of copies of that edition if not 1; use extra postage for 4 or more), e.g. "#35—3 copies". SEND US A PACK OF SASE's, one for each future edition you want (suggestion: mark the final one "last"); we'll mail you each upon publication, and we'll absorb any postage increases.

ASTROSCHEDULES LIST astronomy/space events open to all (no U-M connection required) at U-M or by U-M people, whether sponsored by the Astronomy Dept. or by other, separate units such as the Exhibit Museum. CODE 2A1f# means 2nd listing at location A (Ann Arbor); event type(s) f films, l lectures, m meetings, p planetarium, t telescopes, x other; and # if free. LECTURE TITLES ARE "IN QUOTES", FILM TITLES UNDERLINED. \*See DRIVING DIRECTIONS, page 2.

### ANN ARBOR AREA

(1Ap) THE U-M EXHIBIT MUSEUM\* PLANETARIUM has public shows each Saturday and Sunday except major holidays and August. Children under 5 are not admitted. Admission for all other ages is \$1 at press time but subject to change. MORE INFO including how to arrange private group shows: (313)764-0478. Current public shows:

- Jan 8-Feb 27: "Orion & Company" (Winter stars & planets). Saturdays 10:30, 11:30, 2:00, 3:00, 4:00. Sundays 2:00, 3:00, 4:00.
- Mar 5-May 29 except Apr 3: "The Loneliness Factor" (is there life beyond Earth?). Saturdays 10:30, 11:45, 1:30, 2:45, 4:00. Sundays except Apr 3: 1:30, 2:45, 4:00. Closed Apr 3. Additional shows Mar 28-31 and Apr 1 & 4-8: 1:30, 2:45, 4:00.
- June and July: please send for Edition 35.

(2A1f#) ASTROFEST is films plus lectures by Jim Loudon, Staff Astronomer of U-M's Exhibit Museum, which cosponsors AstroFest with the Dept. of Aerospace Engineering. Programs (numbers underlined) are 7:30 p.m. the Fridays listed, Aud. 3, Modern Languages Bldg.\* MORE INFO: Jim Loudon, (313)994-3966 twenty-four hours a day.

- 119 (Jan 14): "Space Shuttle Operational" (films and slides from Mission 5 plus 1983 preview).
- 120 (Feb 11): "Space History". Interview of Pluto discoverer Clyde Tombaugh by Jim Loudon; The Dream that Wouldn't Down, on Robert Goddard; The Space Shuttle Orbital Flight Tests.
- 121 (Mar 11): "Asteroids: Their Definite Promise and Possible Threat to Earth."
- 122 (Apr 1): "Space Shuttle Update" with all-new slides and films.
- May 13, Jun 24, Jul 15, Aug 5: please send for Edition 35.

(3At1fp#) VISITORS' NIGHTS of the U-M Astronomy Dept. let you look through the Angell Hall\* telescopes if it's clear; regardless of weather, there are lectures, films, etc. These begin at 8:30 p.m. the Fridays listed, Aud. B, Angell Hall.\* MORE INFO: (313)764-3440.

- Apr 8: Dr. Alan Uomoto, "The Big Bang".
- Apr 15: Dr. Hugh Aller, "Very-Long-Baseline Interferometry".
- Apr 22: Dr. Gunther Elste, "What High-Velocity Stars Tell Us".
- Jun 3, 10, and maybe 17: please send for Edition 35.

(4At#) PEACH MOUNTAIN OBSERVATORY\* will open to let you through the huge 24-inch telescope and other instruments Sunset the following Saturdays through at least 1:00 Sunday morning: Apr 16, May 14, Jun 11, Jul 9, Aug 6, Sep 3, Oct 8. PROGRAM CANCELLED IF IT IS OVERCAST AT SUNSET. Sponsors: The University Lowbrow Astronomers (see 6Am#). MORE INFO: Mike Potter, (313)764-3446 days, or Doug Nelle (313)663-2080 evenings.

85-foot radio telescope open houses, Jun-Sep: please send for Edition 35.

(5Ax#) INTERNATIONAL ASTRONOMY DAY, Saturday, Apr 23, will be marked by public events around Ann Arbor, sponsored by the University Lowbrow Astronomers (see 4At# and 6Am#), but no details were available at press time. MORE INFO: same as in 4At# above.



(6Am#) MEETINGS of organizations recognized by U-M (but open to everyone) include:  
 STILYAGI AIR CORPS (science fiction) 8:15 p.m. each Wednesday except some around holidays, Michigan Union\*. MORE INFO: ask for a Stilyagi person at (313)662-6744; or Chip or Janice Morningstar, (313)665-0420.  
 UNIVERSITY LOWBROW ASTRONOMERS (amateur astronomy) 7:30 p.m. the Fridays listed (usually 2nd Friday of each month), room 5006 Angell Hall; see also 4At# and 5Ax#. MORE INFO: as in 4At#.  
 ● Jan 14: Frank McCullough, Warren Astronomical Society slide show "The Winter Observer".  
 ● Feb 11: Gary M. Ross, "Ultrawide-Field Astrophotography by the Seat of Your Pants"; Gerald Persha, "Photoelectric Photometry for the Masses".  
 ● Mar 11: Don Luttermoser: talk, subject to be announced.  
 ● Apr 8: Jack Brisbin, "Amateur Telescope Making".  
 ● May (possibly not 2nd Friday) through Aug: please send for Edition 35.  
 ANN ARBOR SPACE ADVOCATES (Michigan L5 Society): no information at press time on when or even if this group will meet in Jan-Apr. MORE INFO: Chandran, (313)769-4635.

## DETROIT AREA

(1Dx) CONFUSION 101, the 10th annual science-fiction convention sponsored by Stilyagi Air Corps (see 6Am#) with the Ann Arbor Science Fiction Association, is January 28-30 at the Plymouth Hilton\*. Pro guest of honor is author C.J. Cherryh (Down Below Station, Faded Sun series); fan guest of honor is Bill Cavin; toastmaster is author Ted Reynolds. Lots more writers and fans are there for sf camaraderie; there are panels, films, videotapes, premieres, contests, a computer room, a masquerade ball, and more. \$15 at the door or \$13 by mail until Jan 15 (Ann Arbor Science Fiction Association, P.O. Box 2144, Ann Arbor, MI 48106); banquet \$13.50, optional. Cherryh, Reynolds, and perhaps others will hold a free autograph session 5:00-7:00 p.m. Jan. 27, Community Newscenter, South University at Forest\*, Ann Arbor. MORE INFO: Tara Edwards, (313)971-2055 10:00 a.m. to 8:00 p.m.

(2D1#) THE SOVIET SPACE PROGRAM is a lecture by Jim Loudon 7:00 p.m. Tuesday, February 8 in room 119 F Bldg.\*, Auburn Hills Campus, Oakland Community College, whose Student Activities Office sponsors it. After the two-hour lecture is "Spacerap", your chance to ask Loudon any question about astronomy or space. MORE INFO: Christie Frye, (313)853-4369 business hours. Possible Loudon lecture in May: please send for Edition 35.

EAST LANSING (NOTE ADDED IN PRESS): A course and public lecture series by Jim Loudon on current space and/or astronomy will probably be offered at MSU in April and May. Course will be nontechnical and nonmathematical. MORE INFO by mid-February: Abrams Planetarium, (517)355-4676, or Jim Loudon, (313)994-3966.

## \*DRIVING DIRECTIONS

ANN ARBOR CAMPUS, GENERAL DIRECTIONS: I-94 to exit 177; State St. 2½ mi N to South University intersection on right; successive intersections on right are North University (Kresge store), Washington (just past State Theatre), Huron (major intersection). NOW, FROM SOUTH TO NORTH:  
COMMUNITY NEWSCENTER (1Dx): South University one long, then two short, blocks E of State.  
MICHIGAN UNION (6Am#): on W side of State opposite South University intersection.  
ANGELL HALL (3At1fp#): on E side of State halfway from South to North University. (also 6Am#)  
EXHIBIT MUSEUM (1Ap): on N side of Geddes, which is what North University officially turns into when it bends four blocks E of State (though no sign there says so).  
MODERN LANGUAGES BLDG. (2Alf#): on Washington between one and two blocks E of State.  
PUBLIC PARKING (fee): take Washington three blocks E of State and cross street. From here, Modern Languages Bldg. is two blocks W; Exhibit Museum is one S then one E.  
PEACH MOUNTAIN OBSERVATORY (4At#): US 23 N from Ann Arbor 5 mi, to exit 49; North Territorial Rd. 9½ mi W to "Radio Astronomy Observatory" sign on N side of road. This is about 1½ mi W of the Dexter-Pinckney Rd. intersection. Free parking at Observatory.  
PLYMOUTH HILTON (1Dx): M-14 to Sheldon Rd. exit; N on Sheldon to 5-mile; E on 5-Mile to end Northville Rd.; S on Northville. Free parking.  
F BLDG., AUBURN HILLS CAMPUS, OCC: on Featherstone (=22-Mile) about 1½ mi E of the Pontiac Silverdome and just W of Squirrel Rd. where Featherstone ends. F Bldg., labeled, is on the S side of campus (farthest from Featherstone); free parking in various campus lots, though the one by F Bldg. itself often fills by lecture time.