March Meeting with F. Peter Schloerb
FRIDAY, MARCH 2ND AT NORTH SCITUATE COMMUNITY CENTER

THE LARGE MILLIMETER TELESCOPE

Dr. Peter Schloerb of the University of Massachusetts will present a summary of the Large Millimeter Telescope (LMT) Project and its scientific potential. The LMT is a 50m diameter radio telescope designed for operation at wavelengths between 1 and 4 millimeters. At these wavelengths, the principle sources of radiation are thermal emission from dense, star forming, interstellar gas and dust. The large size of the LMT will enable observations of these clouds in distant galaxies at the earliest stages of galaxy formation and provide important clues about the history of star formation and galaxy evolution in the Universe.

DIRECTIONS TO THE COMMUNITY CENTER: From Seagrave Observatory: North Scituate Community Center is the first building on the right side going south on Rt. 116, after the intersection of Rt. 6 Bypass (also Rt. 101) and Rt. 116, in N. Scituate. Famous Pizza is on the corner of that intersection. Parking is across the street from the Community Center.
President’s Message

**Dave Huestis, President**

As I write this announcement we were once again in a deep freeze with snow and ice on the ground.

Should we have to cancel the March meeting due to weather conditions, check your favorite Rhode Island radio station for a cancellation notice.

In addition, for those of you who have email, should I have to cancel a meeting, I will send an email as soon as I make the go/no go decision.

Please remember that our March meeting will be held at the North Scituate Community Center.

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**Invitation to Observe the Prime Time Lunar Eclipse**

**Dave Huestis**

Want to watch a great celestial event without having to wait until late at night or during the wee hours of the morning? Skyscrapers, Inc., the Amateur Astronomical Society of Rhode Island has a special astronomical party for you.

You are cordially invited to the Tasca Soccer Field in North Scituate, adjacent to the McDonalds on Route 6, to view the total lunar eclipse on Saturday March 3. Skyscrapers members will be on hand with a variety of telescopes, both large and small, so you can catch a close-up view of the Moon as it gradually passes through the Earth’s shadow.

Why Tasca Soccer Field and not Seagrave Observatory? Our eastern tree-line prevents us from observing most of this event.

People should arrive at Tasca Field around 5:30pm. That’s when the Moon rises, already in eclipse. However, you can come anytime, depending upon which phase of the eclipse you wish to observe (see specific times in accompanying article).

We will wrap things up at Tasca Field at around 8:00 pm.

Afterwards you are invited back to Seagrave Observatory on Peeptoad Road in North Scituate for more star and planet gazing. There you can observe through any of our four main telescopes. Saturn will be the primary target of observation, along with a few double stars. Unfortunately the Full Moon will blot out all but the brightest galaxies and star clusters. The Observatory will remain open until 10:00 pm.

Our members may also bring their own telescopes and binoculars to share the view with you. Parking is limited at the Observatory, so plan accordingly. Once our parking lot is full, we will have to turn folks away. No parking is permitted on Peeptoad Road.

Hope you can attend. Visit the Skyscrapers web site at [http://www.theskyscrapers.org](http://www.theskyscrapers.org) for further information, including any cancellation notice should the weather prevent us from observing this prime time lunar eclipse.

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**Total Lunar Eclipse at Moonrise**

**Dave Huestis**

Would you like to watch an interesting astronomical event without having to wait until the middle of the night? Well, on March 3 at supper time you’ll be able to observe a total eclipse of the Moon. This eclipse occurs on a Saturday evening, so if the weather cooperates you can easily set aside a little time to enjoy this show. While we will not see the event in its entirety, all things considered, I think we are favorably positioned to get a unique view from the mid-totality phase to the end of the eclipse.

Why don’t we see the eclipse from start to finish? Though a lunar eclipse can be seen over a large area of the Earth’s surface, one obviously needs to have the Moon visible. Unfortunately the eclipse begins at 3:17 pm (EST) when the Moon is still well below our eastern horizon. We really don’t miss much of the show because the Moon is then only entering the Earth’s faint shadow called the penumbra, which is often difficult to detect in its early stages anyway.

Only as the Moon slides deeper into the
A keen-eyed observer would see a subtle shading of the lunar surface. Just prior to the Moon entering the Earth’s dark umbral shadow one should notice that the moonlight looks somewhat subdued.

Again, we here in Rhode Island will not see the beginning of the dark umbral phase which begins at 4:30 pm, because the Moon will still be an hour away from rising. When the Moon finally rises above the eastern horizon at 5:30 pm, you’ll see a very small percentage of the lunar surface still illuminated. Since the Moon will be very low in the sky, an unobstructed view toward the east will be a necessity. Totality will begin a mere fourteen minutes later at 5:44 pm as the Earth’s shadow completely envelopes the Moon. And it should look somewhat strange. Why? The Sun sets at 5:36 pm, only eight minutes before totality begins, so the sky will still be very bright.

Totality continues for one hour and 14 minutes. The Moon will continue its rise into a darker sky as twilight deepens, so evidence of the eclipse should become more noticeable. Totality will be at its midpoint at 6:21 pm, and will end at 6:58 pm. It will be interesting to see what colors the lunar surface will display and if the Moon will completely disappear from the sky at mid-eclipse.

As the Earth, Moon and Sun move out of alignment, sunlight will once again illuminate the lunar surface. This event occurs at 6:58 pm. For the next hour and four minutes you can watch as the Earth’s dark umbral shadow gradually uncovers the Moon. This phase ends at 8:12 pm.

From then until 9:26 pm the Earth’s light penumbral shadow will progress over the lunar surface until it leaves it. In a dark sky you may be able to detect this shadow soon after the partial phase completes. Thereafter the remaining phase will hardly be noticeable at all as the Moon begins to return to full brightness.

If you have binoculars or a telescope, now will be the time to put them to good use. The more optical aid an observer uses, the more detail one will discern. Even if you don’t have access to expensive equipment don’t despair. Mother Nature provided you with a pair of the most valuable observing tools -- your eyes! Use them to follow the progress of this beautiful event.

If the weather is favorable make every effort to observe this beautiful celestial show. The next one in August is even less favorable for us in New England, for it occurs at moonset! So make the best of this upcoming opportunity.

Good luck, keep your eyes to the skies.

And don’t forget that the Vernal Equinox (Spring) occurs on March 20 at 8:07 pm EDT (Eastern Daylight time).

And remember, Seagrave Observatory is also open every Saturday night for your viewing pleasure, weather permitting of course. Visit us at http://www.theskyscrapers.org for information.

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**Gallery**

Even Solar Sails Need a Mast
By Patrick L. Barry

Like the explorers of centuries past who set sail for new lands, humans may someday sail across deep space to visit other stars. Only it won’t be wind pushing their sails, but the slight pressure of sunlight.

Solar sails, as they’re called, hold great promise for providing propulsion in space without the need for heavy propellant. But building a solar sail will be hard; to make the most of sunlight’s tiny push, the sail must be as large as several football fields, yet weigh next to nothing. Creating a super-lightweight material for the sail itself is tricky enough, but how do you build a “mast” for that sail that’s equally light and strong?

Enter SAILMAST, a program to build and test-fly a mast light enough for future solar sails. With support from NASA’s In-Space Propulsion Program to mature the technology and perform ground demonstrator tests, SAILMAST’s engineers were ready to produce a truss suitable for validation in space that’s 40 meters (about 130 feet) long, yet weighs only 1.4 kilograms (about 3 pounds)!

In spite of its light weight, this truss is surprisingly rigid. “It’s a revelation when people come in and actually play with one of the demo versions—it’s like, whoa, this is really strong!” says Michael McEachen, principal investigator for SAILMAST at ATK Space Systems in Goleta, California.

SAILMAST will fly aboard NASA’s Space Technology 8 (ST8) mission, scheduled to launch in February 2009. The mission is part of NASA’s New Millennium Program, which flight tests cutting-edge technologies so that they can be used reliably for future space exploration. While actually flying to nearby stars is probably decades away, solar sails may come in handy close to home. Engineers are eyeing this technology for “solar sentinels,” spacecraft that orbit the Sun to provide early warning of solar flares.

Once in space, ST8 will slowly deploy SAILMAST by uncoiling it. The truss consists of three very thin, 40-meter-long rods connected by short cross-members. The engineers used high-strength graphite for these structural members so that they could make them very thin and light.

The key question is how straight SAILMAST will be after it deploys in space. The smaller the curve of the mast the more load it can support. “That’s really why we need to fly it in space, to see how straight it is when it’s floating weightlessly,” McEachen says.

It’s an important step toward building a sail for the space-mariners of the future.

Find out more about SAILMAST at nmp.nasa.gov/st8. Kids can visit spaceplace.nasa.gov/en/kids/st8/sailmast to see how SAILMAST is like a Slinky® toy in space.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
This membership shall be for life and no dues shall be required.

§1 The President and Executive Committee shall present a proposed yearly operating budget for membership approval at the annual meeting. The Executive Committee shall have the authority to approve non-recurring expenditures only if these are authorized by motion at any monthly meeting. The approval of the Executive Committee or by passage of a motion at any monthly meeting to approve any expenditure deemed necessary to protect the assets of the Society in an emergency situation occurs. The Executive Committee is required to inform the Society of the nature of the emergency, the steps taken to protect the property of the Society, and the amount of money that was spent at the next monthly meeting.

§2 The fiscal year shall be from April 1 through the following March 31. The dues shall be the same as the following fiscal year.

§3 Dues are payable in April for the dues year then beginning. The annual dues shall be: $10.00 for Junior Members; $25.00 for Members; $30.00 for Family Members; $50.00 for Senior Members; $50.00 for Senior Citizen Members; $60.00 for Sponsors; $100.00 for Supporters; $250.00 for Patrons; $500.00 for Benefactors ($50, $100, $250, $500).

§4 Honorary membership may be conferred upon any person for unusual and outstanding accomplishment in science. It may be conferred upon any member of the Society. Honorary members shall be senior members who have the privilege of voting and holding office.

§5 The Secretary may confer the additional privileges of an Honorary member upon any member of the Society. An Honorary member shall have all the privileges of a Senior Citizen member except those of voting and holding office.

§6 Honorary members and senior citizen members shall have the privilege of voting and holding office. Senior citizen members must be 65 years of age or older; senior citizen members must be 75 years of age or older; senior citizen members must be 85 years of age or older. Junior members under 18 years of age shall have the privilege of voting and holding office. Junior members over 18 years of age shall have the privilege of voting and holding office, except that they shall not have the privilege of holding office until they have reached the age of 18.

§7 An applicant for junior, senior, contributing or honorary membership shall submit the standard form of application together with dues as specified in Article I, Section 1, of the By-Laws.

§8 The object of this Society shall be to educate the general public and membership on matters pertaining to astronomy. It shall be an educational, nonprofit organization.

§9 The name of this Society shall be "SkyScrapers, Inc. (Amateur Astronomical Society of Rhode Island)."

§10 The officers shall consist of a President, First Vice-President, Second Vice-President, Secretary, and Treasurer. Their duties and responsibilities shall be as prescribed by their respective titles.

§11 The officers for terms of one year or until the successors are elected and take office. A majority vote shall be required to elect.

§12 Any individual who violates Local, State, or Federal Law, or conducts himself in any behavior that compromises the reputation of the Society, will be referred to a disciplinary board consisting of the Executive Committee and the Board of Trustees.

§13 The Secretary may, with the approval of the Executive Committee, drop from membership any member who is three months or more in arrears.
ARTICLE II: OFFICERS
§1 The regular term of all Officers, Members-at-Large and Junior Trustee shall commence at the adjournment of the May meeting.
§2 The President may at any time appoint such additional officers, chairmen and committees as may be required. The terms of all of these (except, as appropriate, special committees) shall expire with the term of the appointing President. The President shall be, ex officio, a member of all committees.
§3 In the absence of the President the First Vice-President shall assume his duties. In the absence of both, second Vice-President shall assume the duties of the President.
§4 The President shall:
1. Preside over all regular monthly meetings and Executive Committee meetings.
2. Establish an operating budget, with the assistance of the Executive Committee, for approval by the members of the Society per Article X of the Constitution.
3. Oversee the business and legal responsibilities of the Society.
4. Be the official spokesperson for the Society.
§5 The 1st Vice President shall:
1. Provide programs for monthly meetings.
2. Assist the President in communicating to the general public the activities of the Society.
§6 The 2nd Vice President shall:
1. Act as the Chairperson of the AstroAssembly Committee.
2. Submit a proposed operating budget for AstroAssembly to the Executive Committee prior to the Annual Meeting.
3. Have the authority to direct the Treasurer to pay any expenses associated with the operation of AstroAssembly, providing said expenses have been given prior approval by the Society, per the approved operating budget, as defined by Article X of the Constitution, or by motions approved by the members of the Society at any regular monthly meeting.
4. Submit a report of all expenses and income from AstroAssembly at the December monthly meeting.
§7 The Secretary shall:
1. Take the minutes of all meetings, regular, special, Annual and Executive.
2. Maintain an accurate, classified list of the membership of the Society.
3. Notify applicants for membership of their election or rejection, unless they were present at the meeting where this occurred.
4. If required by the President, notify all additional officers, chairmen and committees of their appointment.
5. Send all required notices to the membership.
6. In general, conduct the correspondence of the Society.
7. Have custody of the records of the Society.
§8 The Treasurer shall:
1. Pay on his/her authority any routine bills for periodic, recurring expenses as defined by the operational budget, per Article X of the Constitution.
2. Pay any other non-recurring bills that have been approved.
3. Keep an itemized account of all receipts and disbursements and submit a written report to be published in the Skyscraper newsletter, and presented at each regular monthly meeting.
4. Submit an annual report of all receipts and disbursements for the past fiscal year at the Annual Meeting. Auditors appointed by the President shall audit this report, and the report of the auditors shall be submitted at the next regular monthly meeting.

ARTICLE III: EXECUTIVE COMMITTEE
§1 The Executive Committee shall consist of the President, First Vice-President, Second Vice-President, Secretary, Treasurer and two Members-at-Large.
§2 The Members-at-Large shall be elected at the Annual Meeting, and their terms shall be the same as those of the officers.
§3 The powers of the Executive Committee shall be:
1. To advise the President and assist in carrying out the duties of the office.
2. To take any action that might be taken by the Society, unless such action is reserved to the Society at Large in the Constitution or By-Laws.
§4 The Executive Committee shall meet at the call of the President or on application of any two members. The President shall be, ex officio, chairman.
§5 Any Officer, Committee Member and/or appointed Board Member upon the termination of their duties or vacancy of position shall immediately turn over all Society records, property, files, documents, policies, etc. to the presiding President for transmittal to the appropriate party.

ARTICLE IV: BOARD OF TRUSTEES
§1 The Board of Trustees shall consist of three Trustees, the term of each to be three years. No Trustee shall serve two consecutive terms. One Trustee shall be elected each year at the Annual Meeting. The Trustee with the longest continuous service shall be the Senior Trustee and serve as the Chairperson of the Observatory Committee. Vacancies occurring in office shall be filled by special election to be called by the President with at least 10 days notice to the membership.
§2 The Board of Trustees shall have custody of the grounds, structures and equipment belonging to the Society. They may at any time establish or amend rules for use of said grounds, structures and equipment, and establish policies for members comprising the Observatory Committee. They may at any time grant or withdraw permission to individuals to use the grounds, structures and all equipment belonging to the Society.
§3 The Board of Trustees shall be responsible to the Society. Decisions of the Board of Trustees may also be overruled by five members of the Executive Committee, all voting in the affirmative.
The Board of Trustees shall conduct an annual inventory of equipment and property belonging to the Society, and submit said inventory list to the Executive Committee prior to the Annual Meeting.

ARTICLE V: QUORUM
Twelve (12) senior and contributing members shall constitute a quorum for the transaction of business at any meeting as defined in Article VI of The Constitution. At no time shall the lack of a quorum prevent those present from proceeding with the program of the day or evening.

ARTICLE VI: RULES OF ORDER
The rules contained in 'Robert's Rules Of Order, Revised' shall govern the Society in all cases to which they are applicable and in which they are not inconsistent with the Constitution and By-Laws.

ARTICLE VII: DISSOLUTION
Upon dissolution of the corporation, the Board of Trustees shall after paying or making provisions for the payment of all liabilities of the corporation, dispose of all of the assets of the corporation in such a manner as to comply with, or to such organization or organizations organized and operated exclusively under, Section 501(C)(3) of the Internal Revenue Code of 1954.
Featured speaker: Our guest speaker was Dr. Stephen Schneider from the University of Massachusetts (Amherst). Dr. Schneider’s seminar, entitled “Dark Matters,” gave an insight about the universe’s budget: about 73% of the universe consists of dark energy, 23% of dark matter and the rest is distributed among stars, planets, neutrinos and other baryonic matter. Dr. Schneider and his students have conducted research on low-surface brightness galaxies at the Arecibo Observatory in Puerto Rico. He concluded his presentation by posing an intriguing question: “Where is all this pretty-dark matter hiding?”

Business meeting: The business meeting was called to order by President Huestis at 9:15 p.m.

Secretary’s report: Amendments to the January 2007’s report were presented and accepted.

Treasurer’s report: Al Schenck recommended to those members who receive S&T to renew their magazine subscription at the time they renew their Skyscrapers’ membership, as it may be easier to process both at the same time. He also encouraged members to apply for the treasurer’s position and offered to assist the new treasurer.

Trustees’ report: Trustee Bob Horton reported the following: gravel spread on the driveway, inventory about two-thirds complete, relocation of the dome postponed due to weather, late March clean-up (looking for volunteers). Also, looking to form an Observatory Committee and organize other activities, e.g. CCD photography – Bob Napier has agreed to offer more workshops on the topic.

• Please, contact the Trustees if you have keys to the observatory. • Weather: if it is cold and windy (e.g. 60 mph gusts) the observatory will be closed – please, heed those warnings.

Librarian’s report: Nothing to report (Dave Huestis on behalf of Tracey Haley).

Historian’s report: Dave Huestis: nothing to report; reminded the membership about the 75th anniversary’s banquet on May 5. • Steve Hubbard brought an original support piece for the Clark’s dome; the piece will be on display.

Nominations Committee: Bob Napier still looking for nominations for second vice-president, treasurer and secretary. He described the 2nd VP position and Bob Horton commented on how rewarding it is to run AstroAssembly.

Old business: The pending motion to admit Fred Baumgartner, Chris Chapman, Kathy Cyr, Frank Dubeau, Robert Forgijel, David Hintz, Dale Klatzker, Lucine Reinbold and George Strayer into membership was passed.

New business: The following new applicant was introduced to the membership: Ed Haskel. He will be voted in next month under old business.

Good of the organization: Glenn Jackson announced that about 10 members are needed to help on March 3 to observe the lunar eclipse; Tracey Haley is getting permits to set up at the Tasca soccer field near McDonald’s. Glenn would also like to conduct a Messier marathon on March 17 at the observatory.

• Jack Szelka is organizing a trip to southern Arizona, May 12–19. Please, sign up if you are interested; need about 20 people.
• Girl Scouts – Apple Valley have requested Skyscrapers participation at their hands-on workshop to be held on May 20 at Bryant University. • Bob Napier let us know about Yahoo’s mailing lists; he also announced that David Levy had a minor stroke and that full recovery is expected. • Dolores Rinaldi mentioned that the propane tank and port-a-john may need to be serviced. Rick Arnold will check into that.

President’s announcements: Next meeting on March 2, at the Community Center.

• Star party on March 23 in Burrillville; need about 12 scopes, 200-300 people expected to attend; will send more info.

Adjournment: The business meeting was adjourned at 10:05 p.m.
Directions to Seagrave Memorial Observatory

From the Providence area:
Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:
Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:
Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:
Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight’s Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:
• Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight’s Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
• Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:
Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.