

DANSK RUMFART

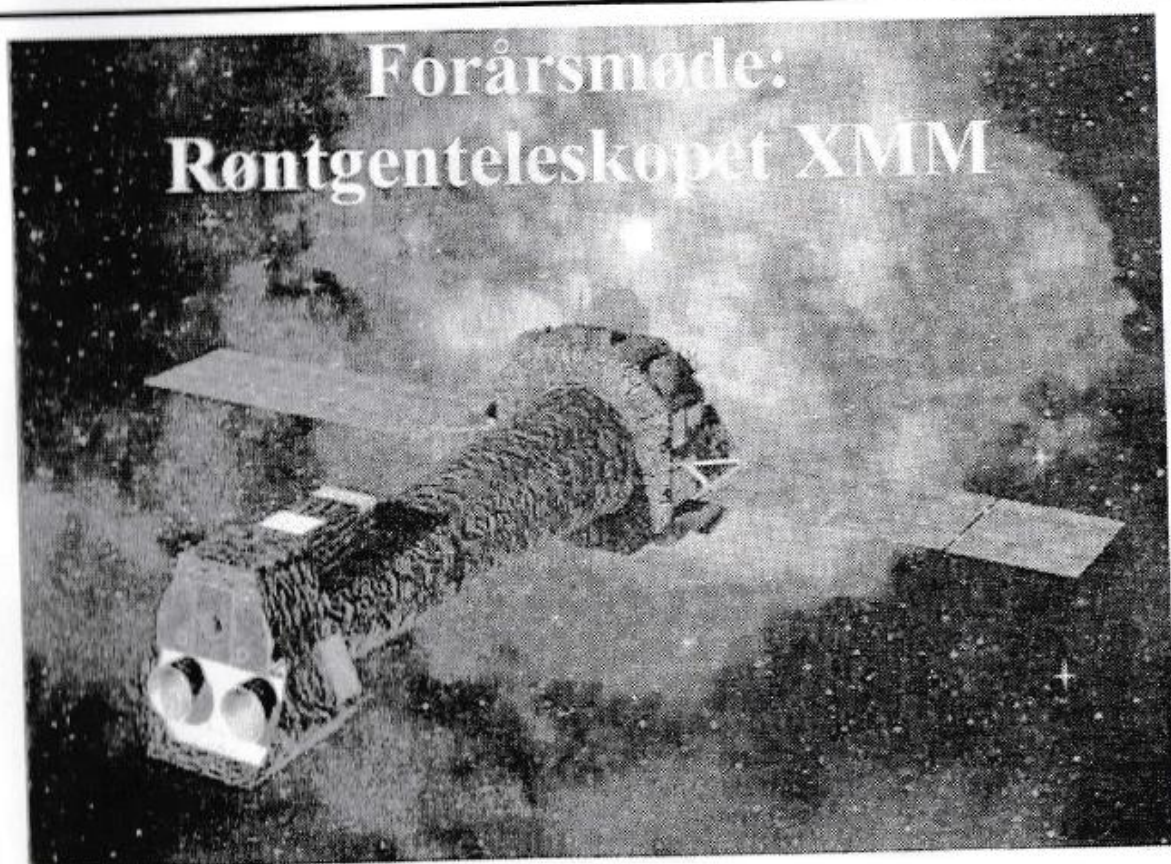
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Dansk Selskab for Rumfartsforskning

Forårsmøde:
Røntgenteleskopet XMM



Læs om Selskabets jubilæumsarrangementer

50 years with spaceflight

Introduction by Thomas A. E. Andersen, President of the Danish Astronautical Society

Dear Dr. Cagle, Mr. Ambassador, Mr. Grage, members and friends of the Danish Astronautical Society.

Tonight I would like to welcome you all to the Society's 50 year anniversary celebration.

Exactly on this evening, 50 years ago, 12 ordinary but visionary men from different status of life met in an apartment in central Copenhagen and founded our Society. It was only the 3rd society of its kind founded in Europe after the Second World War.

A year later, in Paris in 1950, we became one of the cofounders of The International Astronautical Federation which today organizes the Worlds space industry, agencies and organisations.

At our foundation in 1949, the space age had not yet begun. Space travel and space exploration was still only a dream.

8 years later that dream turned into reality when the Worlds first artificial satellite, Sputnik-1, was launched in 1957. The dream matured in 1961 when the first human being, Yuri Gagarin, was sent into space. Since then, huge progress has taken place within spaceflight and space exploration.

With Gagarin, mankind left the Earth and we became space travellers. As the Russian space pioneer Konstantin Tsiolkovsky once wrote, "Earth is the cradle of mankind, but we can not live in the cradle forever".



9 space stations have been built and occupied by astronauts from many countries in shorter or longer periods. Space Shuttles fly regularly between Earth and low Earth orbit to do scientific work or bring up parts for the new space station.

Today, in total more than 390 people have ventured into space, 36 of these have been females. One astronaut, Valery Polyakov, has once been in space for more than 437 days and another, Avdeyev, has recently accumulated

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Forsiden: Rendering af XMM (ESA).
Lille illustration: XMMs røntgenspejl består af 58 polerede skaller, dækket med nikkel og guld (ESA).

INDHOLD

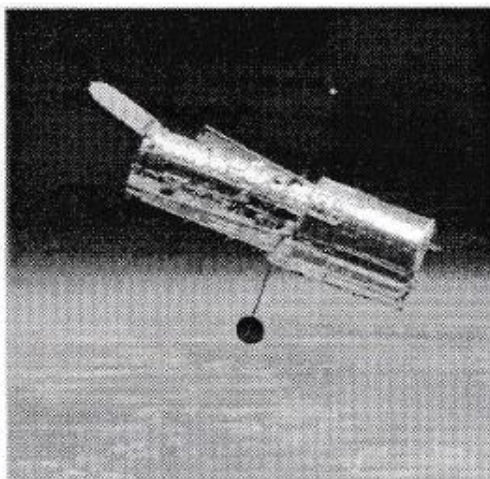
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more than 2 years of space travelling experience. Most daring of all, 12 ambassadors for Mankind have walked on another celestial body – the Moon.

Unmanned probes have been sent out and visited all the planets in our solar system except Pluto, and some have even landed on Mars and Venus. We have also driven our first vehicle on another planet – the Sojourner Mars rover.

The first man made spacecrafts, called Pioneer and Voyager, have left our Solar system. They are now heading for distant galaxies carrying messages from us to other potential inhabitants of the Universe.

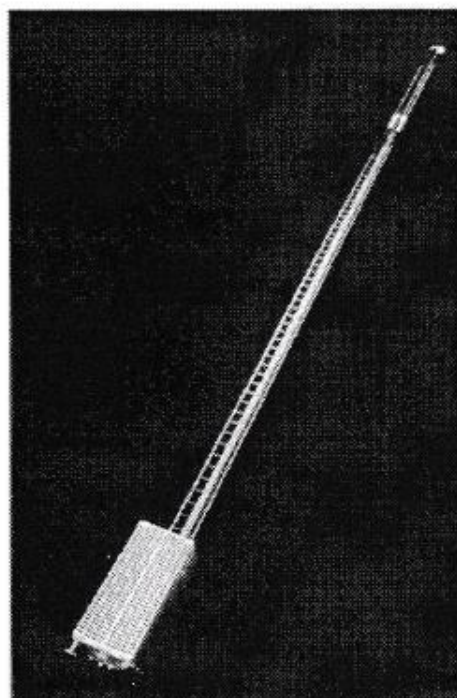
Several great telescopes have been built and launched into orbit. They probe deep into outer space at nearly all wavelengths, and they provide us with stunning pictures like the hidden wonders of the birth of stars.



The founding fathers of our Society could not possible have envisioned the huge impact spaceflight would have on their community 50 years later. Space has become a part of our everyday life. We hardly notice that hundreds of spacecrafts today provide global telecommunication, weather forecasting, precise navigation and Earth observation services from space for us. Several times each month rockets or space shuttles thunders into orbit with new satellites to assist us down here on Earth or explore the outer reaches of space.

Despite all the progress, the space age is still not over. The exploration of space continues, and Denmark is also participating. We fly magnetic experiments on Mars Polar Lander which is due to touch down at Mars' south pole later this year. We have launched the first Danish satellite, called Ørsted, earlier this year to map the Earth's magnetic field, and 8 Danish medical experiments are under preparation for flight on the Space Shuttle and on the International Space Station. Besides all this Danish industry is gaining benefits from our participation in the European Space Agency. The industry delivers parts and equipment for nearly every major ESA-satellite or other ESA-project.

We should feel privileged to live in this period of the space age. 40 years ago we in Denmark were only passive spectators to the quest for space. Today Danish scientists and technicians are actively involved in the research and exploration, and new generations have the possibility of participating or maybe even becoming an astronaut and space traveller themselves.



Furthermore, today space exploration is highly visible and still holds many surprises. The last decade alone has provided us with numerous new and startling discoveries, but also with some very controversial ones. The Mars meteorite

ALH-84001 is probably the most investigated and debated piece of rock in the history of mankind. The final judgement on whether or not it contains the first real evidence of life outside Earth has still to be given. The quest for Mars will definitely continue, as new Mars projects are under preparation for the next century.

In addition powerful telescopes on Earth and in Space have provided us with the first real evidence of planets outside our own Solar System. These new and unknown Worlds orbit distant stars, and the number is growing as our search of the sky continues. Perhaps the new decade will provide us with the first pictures of these yet unseen Worlds.

Continuously we expand our knowledge of the Universe. We discover chemical compositions in new and unexpected locations, like recently when we found traces of water in our own back yard, in the shadow filled craters by the Moons north and south poles. Also pictures from the Galileo spacecraft have revealed subterranean seas on Jupiters moon Europa. The search for liquid water in the Universe will definitely continue in

the coming 50 years, as water and the existence of life are so closely linked.

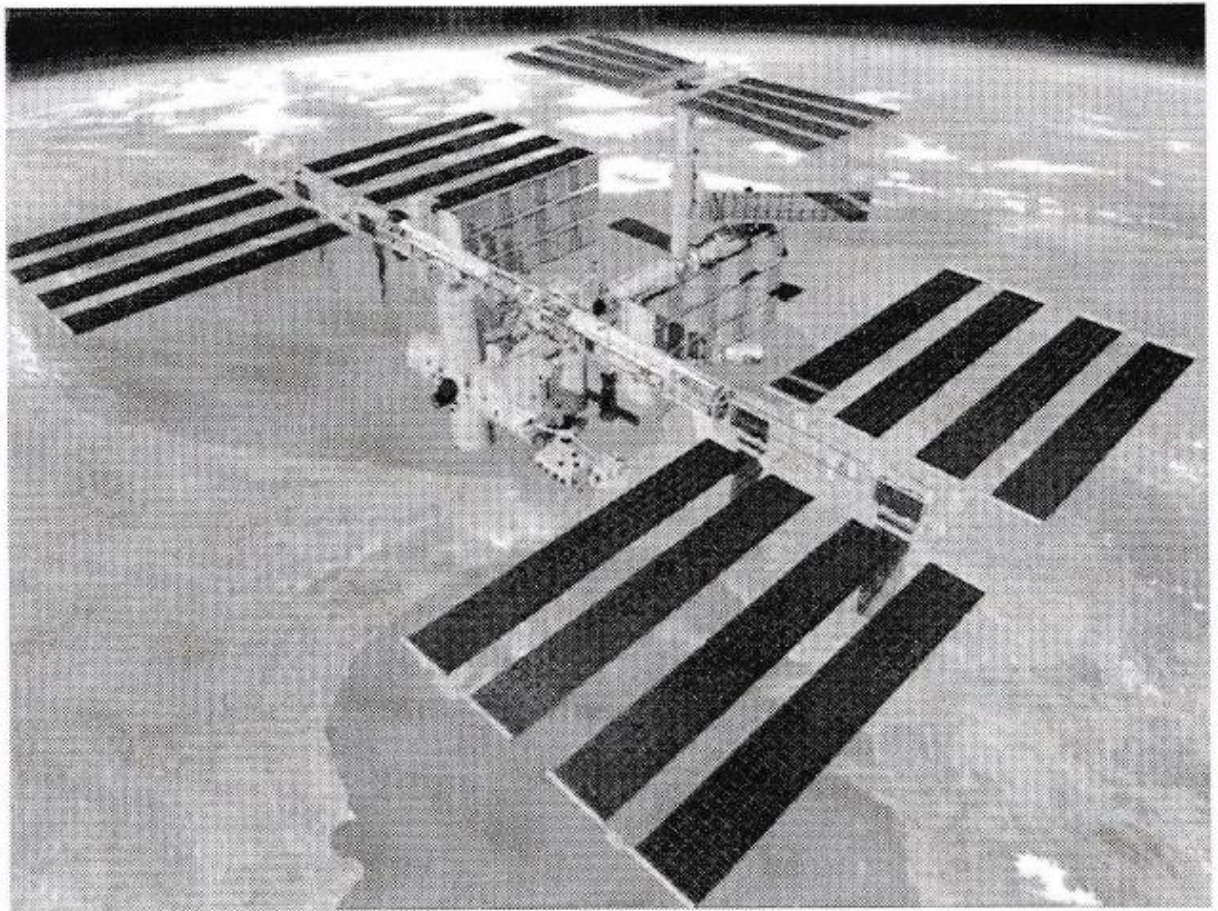
New probes have been launched years ago and as we speak they continue their long journey toward their distant goals. One of them is the Cassini spacecraft destined for Saturn with a European built probe that is to penetrate one of Saturns moons, the cloudy Titan. Other spacecrafts are racing towards their rendezvous with distant comets or asteroids in the years to come.

Perhaps it is also in the coming century that space travel will come of age. Many new projects are under way to provide cheaper and more frequent access to space, especially for us humans.

Future space launchers like X-33/VentureStar, Kistler Aerospace or the Rotary Rocket may provide the break through of this new frontier for us ordinary citizens, like it happened in the 50's and 60's for commercial aviation.

Exactly what the next 50 years of spaceflight and space exploration beholds is extremely difficult





to tell. As the Danish writer and poet Robert Storm Petersen once said, "It is difficult to predict, especially about the future". One thing is for sure, the use and exploration of space shows no sign of diminishing.

I dare to say that with the past 50 years of spaceflight, we have only seen a tiny part of the wonders of the Universe, mankind has only travelled a fraction of the orbits to come and we have not yet seen all the real benefits and services spaceflight can provide for our life down here on Earth.

The conquest of space will continue in the first years of the next century when we concentrate on learning to cooperate in low Earth orbit on the International Space Station. Hopefully later our young astronauts will take the first bold step outwards to our neighbouring planet – Mars, or maybe our children will one day return to the Moon.

In the last decade the interest in space and space exploration in Denmark has grown. In this period

the Society has hosted more than 170 public lectures on all aspects of spaceflight, participated in numerous exhibitions and events, we have established ourselves on the Internet and our magazine "Danish Spaceflight" has been published 42 times.

In parallel the Societies support has grown to new heights, only once before in the previous 50 year has the Society been larger than today and We now host more than 95% of the private Danish space industry.

Whatever the future of spaceflight will bring, the Danish Astronautical Society will continue to cover its development and achievements in the decades to come as it has done over the past 50 years.

On behalf of the Society I would like to thank everybody who have helped us with tonight's arrangement. ■

Selskabets jubilæumsarrangementer

Af Soren Hjelms, Dansk Selskab for Rumfartsforskning

Selskabets jubilæumsarrangement indledtes allerede den 20. september om formiddagen, hvor Selskabet i samarbejde med DAMEC Research A/S havde arrangeret et møde med Yvonne Cagle om de rummedicinske aspekter ved bemanded rumfart.



I Forskningsministeriet havde Yvonne Cagle et kort møde med forskningsminister Birthe Weiss (foto: Ole Steen)

Senere på dagen afholdtes et pressemøde i Tycho Brahe Planetariet, hvor journalister stillede spørgsmål, og Yvonne Cagle blev interviewet til P3 programmet "Harddisken", TV-2 Lorry, Ritzau m.fl.. Samtidigt blev der gjort klart til jubilæumsaftenen med opstilling af Selskabets plancheudstillinger, og folkene fra restaurant Cassiopaia gik i gang med opstilling af borde og service.

Jubilæumsreceptionen startede klokken 18.30 i Planetariets Tychosal. Cirka 220 af foreningens medlemmer, venner og firmagæster mødte op til et veldækket bufftbord med små lune retter og øl, vin og sodavand til de tørstige. Da alle var mødt, bød formanden velkommen, og gæsterne havde mulighed for at nyde buffeten, studere Selskabets plancheudstillinger og besøge Internet-caféen med computere og websider fra Ingeniøren, rummet.dk, Planetariet og Selskabets egne sider.

Kl. 20 startede hovedarrangementet i Planetariets Rumteater, hvor der var taler ved Selskabets formand Thomas Andersen, den amerikanske

ambassadør i Danmark Richard N. Swett og kontorchef i Forskningsministeriet Henrik Grage. Herefter fortalte NASA Astronaut Yvonne Cagle om det at blive astronaut ledsaget af billeder og video projiceret op på planetariets imponerende lærred. Aftenen sluttede med spørgsmål til Yvonne Cagle, hvorefter der blev takket af.

Tirsdag den 21. september startede i Forskningsministeriet, hvor DSR i samarbejde med Ministeriet var vært ved et møde for den danske rumfartsindustri. Yvonne Cagle var her først til et kort møde hos Forskningsminister Birthe Weiss, hvorefter der var sat et par timer af til foredrag og spørgsmål med industrien.

Efterfølgende inviterede bestyrelsen Yvonne Cagle, med en afstikker til Amalienborg slotsplads, på frokost i Tivoli. Her fik Selskabet overrakt en planche med et dansk flag, som har fløjet i rummet, af Dr. Cagle i anledning af jubilæet.



Fra venstre: Yvonne Cagle, Thomas A. E. Andersen, Richard Swett, Michael Lumholt (foto: Soren Jensen).

Om aftenen var Flyveteknisk Forening under IDA vært ved en middag for Yvonne Cagle. Herefter gav Cagle et foredrag på Danmarks Tekniske Universitet om astronauters træning og arbejde. Det blev til endnu et levende foredrag.

efterfulgt af mange gode spørgsmål fra de små 100 tilhørere, der var mødt op.

Selskabet vil benytte lejligheden til at takke de mange personer og organisationer der har hjulpet os i forbindelse med jubilæet. Specielt vil vi fremhæve Den Amerikanske Ambassade, United States Information Services i København ved Andreas Rude, Forskningsministeriet ved Henrik Grage og Jens Ulrik Dalgaard, Flyveteknik

Sektion i IDA ved Thomas Bucka-Christensen, samt ikke mindst de mange medarbejdere ved Tycho Brahe Planetarium som har leveret uvurderlig hjælp ved forberedelse og gennemførelse af Jubilæumsaftenen. Endvidere rettes en tak til Det Offentlige Forskningsudvalg For Rummet samt Tips- og Lottomidlerne, der har bidraget ved finansiering af vores jubilæumsarrangementer og tilhørende udstilling. ■

Røntgenteleskopet XMM

- ESAs øje til røntgenkilder i Universet

med oplæg ved:

Cand. Scient. **Hans Ulrik Nørgaard-Nielsen**, Dansk Rumforskningsinstitut

Tid: Mandag den 7. februar, 2000, klokken 19.30

Sted: H. C. Ørsted Institutet, auditorium 2
(hjørnet af Universitetsparken og Nørre Allé i København)

Fredag den 10. december 1999 blev røntgenteleskopet XMM sendt op med en ARIANE 5 raket, den første kommercielle opsendelse med raketten. Opsendelsen demonstrerer samtidig kraften og pålideligheden af Europas nye opsendelsessystem.

Formålet med XMM er at studere Universet i røntgenområdet. Røntgenstråling er meget kortbølget og energirigt "lys" og det stammer typisk fra kilder med en meget høj temperatur eller store hastigheder. Meget tunge og varme stjerner udsender røntgenstråling. Mere eksotiske fænomener som stof der hvirvles ind i et sort hul, skal også studeres med teleskopet, som medfører brændstof nok til op imod 10 års drift.

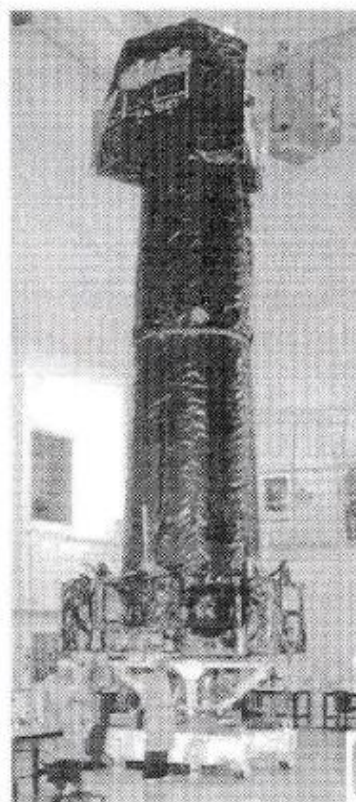
Cand. Scient. Hans Ulrik Nørgaard-Nielsen arbejder på Dansk Rumforskningsinstitut vil fortælle om selve teleskopet og røntgenastronomi i al almindelighed.

Yderligere oplysninger hos faggruppekoordinator

Finn Willadsen, tlf. 48 25 56 62, E-mail:

finn_willadsen@hotmail.com

Gratis adgang. Alle er velkomne.



Dansk Selskab for Rumfartsforskning

er stiftet den 20. september 1949 og beskæftiger sig med den fredelige udnyttelse af rummet. Det er den danske sektion af IAF (den Internationale Astronautiske Føderation), som blev oprettet i 1950 af de nationale astronautiske foreninger.

Selskabet arrangerer offentlige møder/foredrag, studiebesøg, udstillinger, kontakt mellem rumfartsinteresserede, presseinformation og repræsenterer Danmark i IAF m.m. For at styrke det fagtekniske arbejde indenfor rumfartens mange forskellige områder har selskabet nedsat pt. 6 faggrupper, som man er velkommen til at kontakte og evt. tilslutte sig:

- Faggruppe A. **Satellitkommunikation og -navigation.**
Koordinator: Michael Lumholt, tlf. 38 10 09 79
E-mail: lumholt@inet.uni2.dk
- Faggruppe B. **Bemandet rumfart og mikrogravitetsforskning.**
Koordinator: Jesper Nordling, tlf. 38 88 31 35
E-mail: nordling@vip.cybercity.dk
- Faggruppe C. **Planetforskning og rumbaseret astronomi.**
Koordinator: Finn Willadsen, tlf. 48 25 56 62
E-mail: finn_willadsen@hotmail.com
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E-mail: bjarnemj@teliamail.dk
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Koordinator: Paul A. Bruun, tlf. 38 88 44 05
E-mail: pab@private.dk
- Faggruppe F. **Almen Rumfart.**
Koordinator: Steen E. Jørgensen, tlf. 39 64 31 54
E-mail: sej@fys.ku.dk

Som medlem får man tilsendt bladet 'Dansk Rumfart' med information om arrangementer og nyheder med fortrinsvis dansk relevans indenfor rumfarten. Desuden får man det norske blad: 'Nytt om Romfart', der udkommer 4 gange årligt, samt andre meddelelser om arrangementer mv.

Årskontingenterne er: Ordinært medlem: 275 kr., Studerende: 150 kr., Unge under 18: 50 kr., firmaer/-institutioner: 2500 kr. (minimum). Et firma/institutionsmedlemskab dækker tilsendelse af medlemsblade og mødeindkaldelser, men går primært til afholdelse af møder, seminarer osv. til fremme af rumfarten i Danmark.

Indmeldelse på møderne eller ved indbetaling af kontingent til:

Dansk Selskab for Rumfartsforskning
Postbox 31, DK-1002 København K, Postgiro 2 04 69 70

Kontaktpersoner:

Formand: Thomas A. E. Andersen, tlf. 39 67 76 33, E-mail: dsr.formand@inet.uni2.dk
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Sekretær: Bjarne M. Johansen, tlf. 35 84 08 55, E-mail: bjarnemj@teliamail.dk

Selskabet kan kontaktes på E-mail: dsr@forening.dk eller på WWW: <http://www.rumfart.dk>