Report from the Project Scientist

XMM-Newton Users' Group Meeting XVIII

11 May 2017

ESAC, Madrid, Spain

Norbert Schartel

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AO 16 I

Submission Statistics for AO16

Nr. of proposals received:	442
Nr. of PI's	333
Nr. of Co-I's per proposal	5
Nr. of PI's+Co-I's (email)	1568
Nr. of PI's+Co-I's (surname)	1344
Nr. of countries participating	40
Nr. of Observations	2107
Nr. of Pointings	3584
Nr. of targets	1677
Nr. of Obs. per Proposal	4.8
Nr. of Pointings per Proposal	8.1
Total Req. Time (ks)	91050
Average Req. Time per proposal (ks)	206.0
Average Req. Time per pointing (ks)	34.5
Average Req. Time per observation (ks)	43.2

AO 16 III

Statistics by Proposal Type

Proposal Type	Nr. of proposals (Large Program)	Total Time (ks) (Large Program)
Guest Observer	324 (65)	37857 (46560)
Target of Opportunity (anticipated)	51 (2)	4894 (1739)

AO 16 IV

Statistics on Joint observations (270 observations in 82 proposals)

	Nr. of Prop.	Nr. of obs	Time/Orbits
Chandra	14	21	941.0
HST	18	40	127.0
VLT	6	11	134.0
Swift	12	14	621.0
NuSTAR	44	87	6481.0
INTEGRAL	0	0	None

AO 16 V

Categories Distribution

Category	Nr. of Proposals (Large Programs)	Nr. of Observations (Large Programs)	Total Time Req. (ks) (Large Programs)
A	75 (15)	272 (83)	11971 (6573)
B	111 (7)	394 (77)	15965 (5367)
C	78 (10)	281 (105)	13056 (5890)
E	94 (14)	401 (152)	18373 (7344)
F	72 (13)	380 (178)	17075 (8820)
G	12 (8)	379 (372)	14610 (14305)
	442 (67)	2107 (967)	91050 (48299)

Category	Science	*Category*	Science
A	**Stars**	**E**	**AGN**
B	**Binaries**	**F**	**Galaxies & Clusters**
C	**SN & Pulsars**	**G**	**Cosmology**

AO 16 VI / Large and Very Large Programmes

080003	16	Sciortino	The hard X-ray emission of Class I-II YSOs and the origin of the 6.4 keV Fe line	3	309	LP	0	Stars
080073	16	Li	XMM-Newton Legacy Survey of M31 Halo: Searching for the Missing Accreted Hot CGM	30	510	LP	0	Galaxies
080097	16	Pratt	A novel X-ray-SZ imaging programme to probe ICM physics at low mass and high z	15	852	LP	0	Clusters of Galaxies
080168	16	Ponti	XMM-Newton search for the southern counterpart of the Galactic center lobe	31	868	LP	0	Galaxies
080193	16	Dunn	Joining Juno in Exploring Jupiter's Aurora	6	490	LP	0	Solar System
080195	16	Mantz	A Definitive Test for Evolution in the Metallicity of the Intracluster Medium	8	892	LP	0	Clusters of Galaxies
080208	16	Temim	Understanding the Evolution of Composite SNRs: An XMM Study of MSH 15-56	5	351	LP	0	SNR
080305	16	Bulbul	Deep X-ray Spectroscopy of the Most Distant, Massive Clusters Known	8	748	LP	0	Clusters of Galaxies
080308	16	Kargaltsev	Features in the X-ray spectrum of an isolated rotation-powered pulsar	4	488	LP	0	Neutron Stars
080367	16	Sanders	Measuring sloshing, merging and feedback velocities in Centaurus and Virgo	8	776	LP	0	Clusters of Galaxies
080391	16	Cappi	A pathfinder X-ray spectral study of outflows in the X-ray brightest QSOs at z~2	4	444	LP	0	AGN / Black Hole
080395	16	Risaliti	Cosmology with z>3 quasars	30	1045	VLP	0	AGN / Black Hole
080399	16	Pinto	Study of high Eddington accretion with the ultrafast outflow of NGC 1313 ULX-1	6	750	LP	0	AGN / Black Hole
080409	16	Belfiore	The orbit and spectra of the brightest accreting pulsar: NGC 5907 ULX-1	10	380	LP	0	Neutron Stars
080427	16	Merloni	XMM-RM: Quasar Accretion Physics in the Reverberation-Mapping Field	6	476	LP	0	AGN / Black Hole
080430	16	Acero	Beyond the non-thermal emission of RX J1713.7 3946	9	688	LP	0	SNR

AO 16 VII / Overall Statistics

https://www.cosmos.esa.int/web/xmm-newton/otac-results

Cat	Props	Total	GO	LP	A+B Tot	A+B GO	A+B LP	C Tot	C GO	C LP
A	72.0	11530.0	4957.0	6573.0	1598.0	799.0	799.0	1069.0	1069.0	0.0
		12.7	5.4	7.2	10.7	5.3	5.3	10.5	10.5	0.0
B	111.0	15965.0	10980.0	4985.0	2926.0	1796.0	1130.0	2189.0	2189.0	0.0
		17.5	12.1	5.5	19.6	12.0	7.6	21.5	21.5	0.0
C	81.0	13497.0	7607.0	5890.0	3578.0	1183.0	2395.0	1899.0	1899.0	0.0
		14.8	8.4	6.5	23.9	7.9	16.0	18.7	18.7	0.0
E	94.0	18373.0	11819.0	6554.0	3294.0	1773.0	1521.0	1650.0	1650.0	0.0
		20.2	13.0	7.2	22.0	11.9	10.2	16.2	16.2	0.0
F	72.0	17075.0	8255.0	8820.0	3551.0	1330.0	2221.0	2799.0	1947.0	852.0
		18.8	9.1	9.7	23.8	8.9	14.9	27.5	19.1	8.4
G	12.0	14609.7	774.0	13835.7	0.0	0.0	0.0	575.0	575.0	0.0
		16.0	0.9	15.2	0.0	0.0	0.0	5.6	5.6	0.0
		91049.7	44392.0	46657.7	14947.0	6881.0	8066.0	10181.0	9329.0	852.0
		100.0	48.8	51.2	100.0	46.0	54.0	100.0	91.6	8.4

Cat	Proposal Category
Props	Nr. of Proposals Submitted
Total	Time Requested (ks)
GO	Time Requested in GO Proposals (ks)
LP	Time Requested in Large Programs (ks)
A+B Tot	Time Allocated as A/B priority (ks)
A+B GO	Time Allocated as A/B priority in GO Proposals (ks)
A+B LP	Time Allocated as A/B priority in Large Programs (ks)
C Tot	Time Allocated as C priority (ks)
C GO	Time Allocated as C priority in GO Proposals (ks)
C LP	Time Allocated as C priority in Large Programs (ks)

Numbers in blue are percentages

Category	Science	*Category*	Science
A	Stars	E	AGN
B	Binaries	F	Galaxies & Clusters
C	SN & Pulsars	G	Cosmology

AO 17 Preparation & New Programmes I

- Planned key milestones (2 December 2016, XMM-Newton Newsletter#191 & SOC web-pages):
  - Announcement: 22 August 2017
  - Due date for proposals: 6 October 2017 (12:00 UT)
  - Final approved programme: mid December 2017
  - Second phase submission: 9 January – 2 February 2018
  - Start of observations: 1 May 2018
- 6 Scientific categories / 12 Panels in total / 60 scientists
- OTAC chairperson: Prof. Peter Schneider, University Bonn, Germany
- OTAC panel chairpersons are asked not to participate on new LP
- Proposal submitted to scientific category G (Cosmology) will be evaluated by E (AGN) or by F (Clusters of Galaxy), whatever is more appropriate

AO 17 Preparation & New Programmes II

- Fulfil Programmes

UG

Recommendation 2016-06-08/05: The UG recognizes the need to complete important samples, to observe key targets of other wavelengths and targets otherwise important within an archival context and from legacy considerations. The UG recommends to establish a "fulfil" program to serve such demands better.

- Runs a "normal" programme
- 2 pages of justification
- OTAC is advised to consider Fulfil programmes under the aspect of archival value
- OTAC is advised to allocate C time
- The available C time (per panel) might be increased to satisfy fulfil programmes

AO 17 Preparation & New Programmes III

- Multi-Year Heritage Programmes

UG

Recommendation 2016-06-08/04: At a recent Workshop: "XMM-Newton: The Next Decade", it was clear that there was widespread support at this stage of the mission, for consideration of a new type of observing proposal. This would encourage visionary programmes which would not otherwise be likely to emerge because of the time constraints within allocation cycles, and also a perception that they would be unlikely to succeed in competition with other more standard proposals. The details of the scope and implementation of this new category of proposal would be discussed further within the UG and with the new OTAC chairperson, with a view to offering it in cycle AO-17.

- 8 pages of justification
- 6 Ms to be observed over 3 years (fit to the extension cycle)
- senior review panel in separate session (e.g. former panel chairpersons)
- Call for letter of intent: 28 letters, oversubscription of 15 (stars to WHIM)
- It is difficult to find reviewers who have required knowledge and who are not involved in any planned multi-year heritage Programme

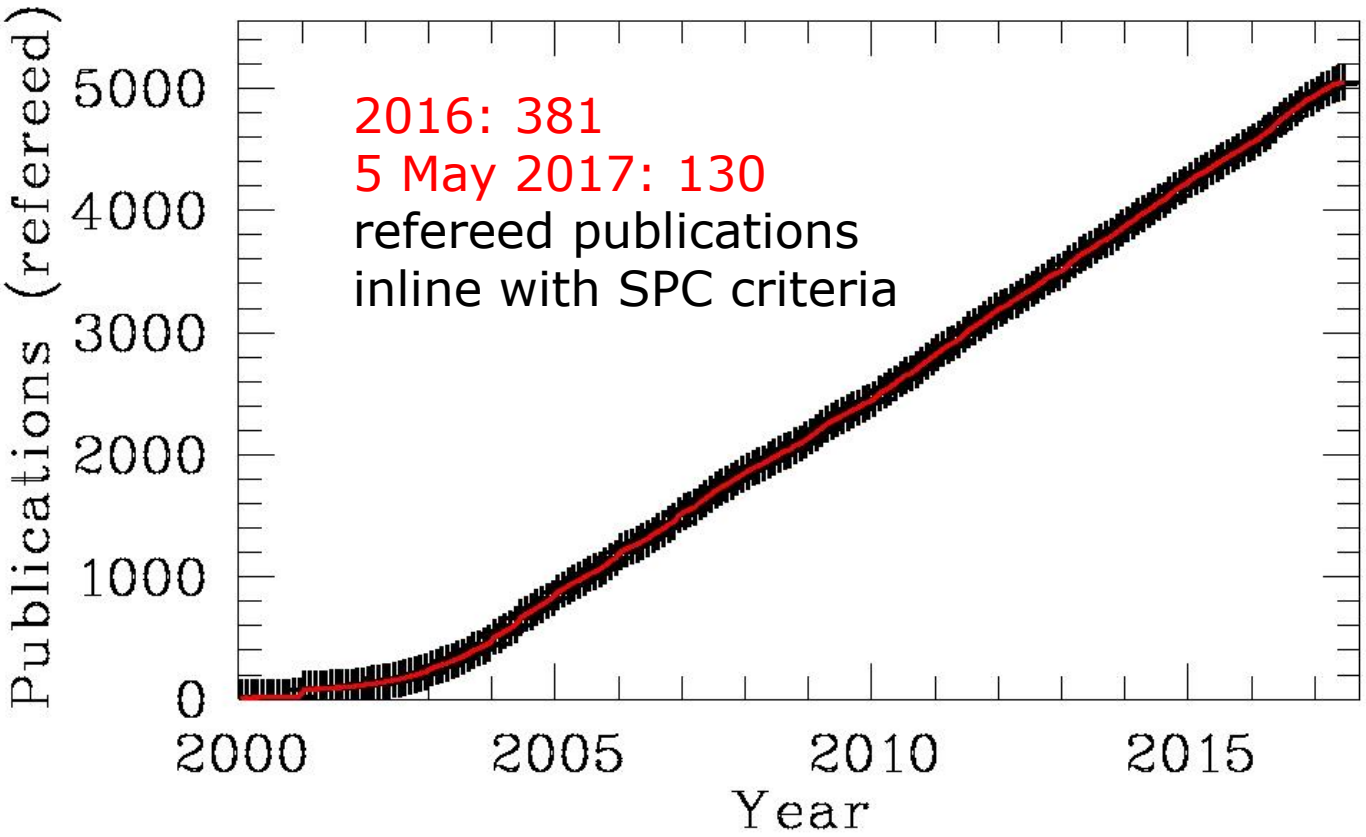
TOO & DDT I

Rev	Observation Id	Target	RA	Dec	Exp. Time (ksec)	Data Status	ODF Data when available	PPS Data when available	Comments
TBD.	0794580701	FO Aqr	22:17:55.38	-08:21:03.9	40.0	ToO (TBD)	ODF Data	PPS Data	(Dr. M. Kennedy)
3197	0794580901	PSR J1023+0038	10:23:47.69	+00:38:40.8	22.0	DPS (TBD)	ODF Data	PPS Data	(Dr. A. Papitto & Dr. L. Stella)
3197	0794580801	PSR J1023+0038	10:23:47.69	+00:38:40.8	22.0	DPS (TBD)	ODF Data	PPS Data	(Dr. A. Papitto & Dr. L. Stella)
3169	0794580601	NGC 1313 X-1	03:18:20.0	-66:29:11.0	47.5	ToO (05-Oct-2017)	ODF Data	PPS Data	(Dr. M. Middleton)
3168	0793183501	Pluto	19:21:50.20	-21:11:31.9	60.0	DPS (03-Oct-2017)	ODF Data	PPS Data	(Dr. C. Lisse)
3154	0794580301	GRO J1744-28	17:44:33.09	-28:44:27.0	23.8	ToO (TBD)	ODF Data	PPS Data	(Dr. Ji Long)
3152	0793183601	T CrB	15:59:30.16	+25:55:12.5	63.8	ToO (01-Sep-2017)	ODF Data	PPS Data	(Dr. G. Luna)
3145	0793183701	LSWR3	10:18:05.00	-58:16:26.3	12.7	ToO (21-Aug-2017)	ODF Data	PPS Data	(Dr. Y. Sugawara)
3142	0790181101	Iota Hor	02:42:33.80	-50:47:57.7	12.9	ToO (09-Aug-2017)	ODF Data	PPS Data	(Dr. J. Sanz-Forcada)
3138	0794580101	SN2016jbu	07:36:25.96	-69:32:55.2	60.4	ToO (06-Aug-2017)	ODF Data	PPS Data	(Dr. M. Fraser)
3116	0793183401	SN 2016gkg	01:34:14.40	-29:26:24.5	19.0	DPS (Public)	ODF Data	PPS Data	-
3110	0793183301	LSWR3	10:18:05.00	-58:16:26.3	10.0	ToO (21-Aug-2017)	ODF Data	PPS Data	(Dr. Y. Sugawara)
3109	0793183201	OGLE16aaa	01:07:20.90	-64:16:21.0	36.6	ToO (07-Jun-2017)	ODF Data	PPS Data	(Dr. J. Greiner)
3101	0793183101	FO Aqr	22:17:55.38	-08:21:03.9	47.0	ToO (21-May-2017)	ODF Data	PPS Data	(Dr. M. Kennedy)
3097	0793183001	PSR J2032+4127	20:32:13.10	+41:27:24.4	38.0	ToO (11-May-2017)	ODF Data	PPS Data	(Dr. Kwan-Lok Li)
3097	0729161001	GRB161104A	05:11:34.46	-51:27:36.4	33.0	Public	ODF Data	PPS Data	-
3086	0793182901	SMC X-3	00:52:05.64	-72:26:04.2	36.6	ToO (21-Apr-2017)	ODF Data	PPS Data	(Dr. F. Koliopanos)

TOO & DDT II

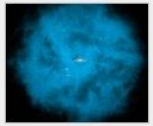
Rev	Observation Id	Target	RA	Dec	Exp. Time (ksec)	Data Status	ODF Data when available	PPS Data when available	Comments
3072	0792382901	FRB 121102	05:31:58.60	+33:08:49.6	23.5	ToO (Public)	ODF Data	PPS Data	-
3071	0792382801	FRB 121102	05:31:58.60	+33:08:49.6	20.5	ToO (Public)	ODF Data	PPS Data	-
3060	0792382701	Circinus ULX5	14:12:39.00	-65:23:34.0	37.0	ToO (Public)	ODF Data	PPS Data	-
3054	0792382601	LSWR 3	10:18:05.00	-58:16:26.3	10.0	ToO (Public)	ODF Data	PPS Data	-
3051	0792382201	Mars	08:38:42.00	-28:27:23.0	46.0	DPS (Public)	ODF Data	PPS Data	-
3051	0792380101	Mars	08:38:42.00	-28:27:23.0	40.0	DPS (Public)	ODF Data	PPS Data	-
3042	0790180801	QS Vir	13:49:51.95	-13:13:37.5	22.0	DPS (Public)	ODF Data	PPS Data	-
3036	0790181001	Iota Hor	02:42:33.80	-50:47:57.7	9.1	ToO (09-Aug-2017)	ODF Data	PPS Data	(Dr. J. Sanz-Forcada)
3033	0790181901	Gaia16aax	14:34:18.50	+49:12:36.0	64.0	ToO (Public)	ODF Data	PPS Data	-
3032	0790180701	SDSSJ010013.13+28022	01:00:13.10	+28:02:25.8	65.4	ToO (Public)	ODF Data	PPS Data	-
3030	0790180901	Iota Hor	02:42:33.80	-50:47:57.7	13.0	ToO (09-Aug-2017)	ODF Data	PPS Data	(Dr. J. Sanz-Forcada)
3022	0790181801	OGLE16aaa	01:07:20.90	-64:16:21	15.0	ToO (Public)	ODF Data	PPS Data	-
3021	0790181301	WD1145+017	11:48:33.60	+01:28:59.4	134.9	ToO (Public)	ODF Data	PPS Data	-
3013	0790181501	MAXI J0911-655	09:12:02.43	-64:52:06.4	37.8	ToO (Public)	ODF Data	PPS Data	-

Publications

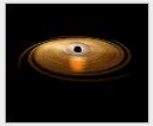


Public Outreach (June 2016 – December 2016)

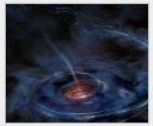
25-Jul-2016:
ASTRONOMERS DISCOVER DIZZYING SPIN OF THE MILKY WAY GALAXY'S "HALO"
Astronomers at the University of Michigan's College of Literature, Science, and the Arts (LSA) discovered for the first time that the hot gas in the halo of the Milky Way galaxy is spinning in the same direction and at comparable speed as the galaxy's disk, which contains our stars, planets, gas, and dust.
Further details on **NASA's portal.**



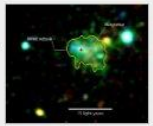
12-Jul-2016:
GRAVITATIONAL VORTEX PROVIDES NEW WAY TO STUDY MATTER CLOSE TO A BLACK HOLE
ESA's orbiting X-ray observatory, XMM-Newton, has proved the existence of a 'gravitational vortex' around a black hole. The discovery, aided by NASA's NuSTAR mission, solves a mystery that has eluded astronomers for more than 30 years and will allow them to map the behaviour of matter very close to black holes.
Further details on **ESA's Science & Technology pages.**



22-Jun-2016:
X-RAY ECHOES OF A SHREDDED STAR PROVIDE CLOSE-UP OF 'KILLER' BLACK HOLE
Some 3.9 billion years ago in the heart of a distant galaxy, the intense tidal pull of a monster black hole shredded a star that passed too close.
Further details on **NASA's web pages.**

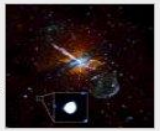


21-Jun-2016:
ASTRONOMERS FIND THE FIRST "WIND NEBULA" AROUND A MAGNETAR
Astronomers have discovered a vast cloud of high-energy particles called a wind nebula around a rare ultra-magnetic neutron star, or magnetar, for the first time.
Further details on the NASA portal and on Science Daily's pages.



19-Dec-2016:
FALSE-COLOUR VIEW OF GALAXY M81
An important part of studying celestial objects is understanding and removing the background noise. The image presented here was created to demonstrate the power of software tools used to analyse observations by ESA's XMM-Newton of large objects like galaxies, clusters of galaxies and supernova remnants.
Further details on **ESA's Space in Images portal.**

19-Oct-2016:
MYSTERIOUS COSMIC OBJECTS ERUPTING IN X-RAYS DISCOVERED
Astronomers have found a pair of extraordinary cosmic objects that dramatically burst in X-rays. This discovery, obtained with NASA's Chandra X-ray Observatory and ESA's XMM-Newton observatory, may represent a new class of explosive events found in space.
Further details on **NASA's Chandra pages.**



05-Oct-2016:
X-RAY TELESCOPES FIND EVIDENCE FOR WANDERING BLACK HOLE
Astronomers have used NASA's Chandra X-ray Observatory and ESA's XMM-Newton X-ray observatory to discover an extremely luminous, variable X-ray source located outside the center of its parent galaxy. This peculiar object could be a wandering black hole that came from a small galaxy falling into a larger one.
Further details on **NASA's pages.**

30-Aug-2016:
RECORD-BREAKING GALAXY CLUSTER DISCOVERED
A new record for the most distant galaxy cluster has been set using NASA's Chandra X-ray Observatory, ESA's XMM-Newton X-ray observatory and a large group of other telescopes in space and on the ground. This galaxy cluster may have been caught right after birth, a brief, but important stage of evolution never seen before.
Further details on **NASA's Chandra pages.**

29-Aug-2016:
XMM-NEWTON REVEALS THE MILKY WAY'S EXPLOSIVE PAST
A giant bubble surrounding the centre of the Milky Way shows that six million years ago our Galaxy's supermassive black hole was ablaze with furious energy. It also shines a light on the hiding place of the Galaxy's so-called 'missing' matter.
Further details on **ESA's Science & Technology pages.**

Public Outreach (2017)

01-Mar-2017:
RAPID CHANGES POINT TO ORIGIN OF ULTRA-FAST BLACK HOLE WINDS
ESA and NASA space telescopes have made the most detailed observation of an ultra-fast wind flowing from the vicinity of a black hole at nearly a quarter of the speed of light.

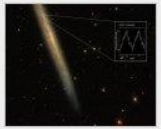
Further details on **ESA's Space Science portal.**

21-Feb-2017:
ESA SATELLITE SPOTS BRIGHTEST KNOWN PULSAR
The European Space Agency's (ESA) XMM-Newton satellite has detected the brightest and farthest known pulsar --- a whirling, x ray-emitting, magnetized neutron star some 40 million light years away.

Further details on **Forbes pages.**

21-Feb-2017:
THE BRIGHTEST, FURTHEST PULSAR IN THE UNIVERSE
ESA's XMM-Newton has found a pulsar - the spinning remains of a once-massive star – that is a thousand times brighter than previously thought possible.

Further details on **ESA's Space Science portal.**



06-Feb-2017:
BLACK HOLE MEAL SETS RECORD FOR LENGTH AND SIZE
A giant black hole ripped apart a star and then gorged on its remains for about a decade, according to astronomers. This is more than ten times longer than any observed episode of a star's death by black hole. Researchers made this discovery using data from NASA's Chandra X-ray Observatory and Swift satellite as well as ESA's XMM-Newton.

Further details on **NASA's Chandra pages.**

31-Jan-2017:
MIND THE GAP: RAPID BURSTER BEHAVIOUR EXPLAINED
Scientists observing a curious neutron star in a binary system known as the 'Rapid Burster' may have solved a forty-year-old mystery surrounding its puzzling X-ray bursts.

Further details on **ESA's Science & Technology portal.**

Workshop 2016

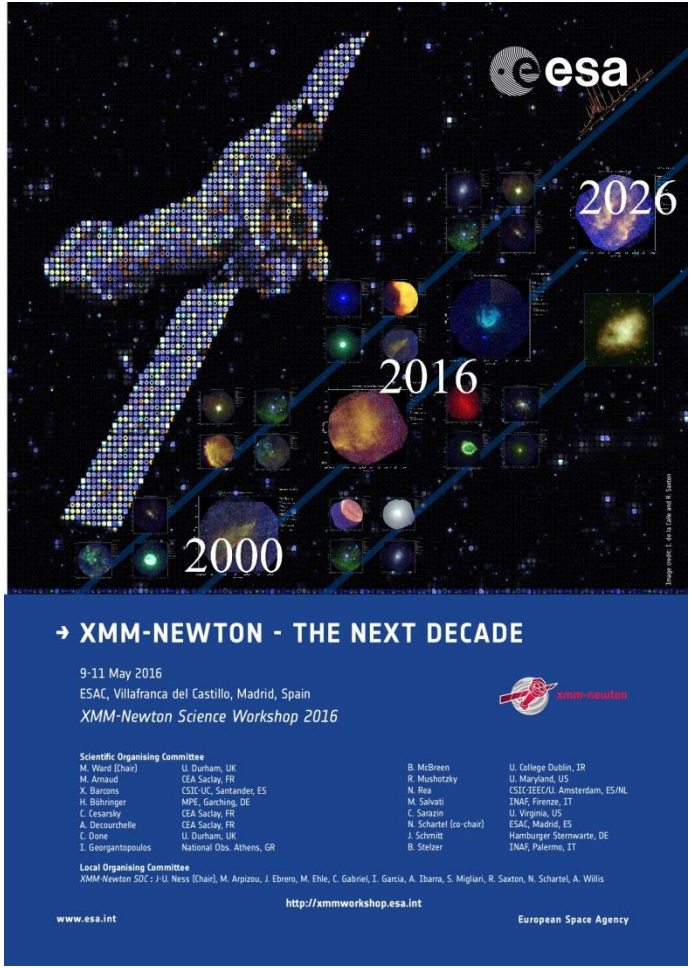
XMM-Newton: The Next Decade

ESAC, Madrid, Spain, 9 - 11 May 2016

- **Chairperson: Martin Ward**
- **148 participants**

Majority of oral presentations will be published in Astronomical Notes

Great Success!



Conference 2017

The X-Ray Universe 2017

Rome, Italy, 6 - 9 June 2017

- **Chairperson: Didier Barret**
- **268 requests for contributed talks**
- **78 requests for poster**

The PS kindly asks for suggestions for the scientific topic (before 1 June 2017).

Candidates for XMM-Newton Users' Group

The PS kindly asks for names for candidates for the XMM-Newton Users' Group (chairpersons and members) before 1 June 2017?

Previous Chairpersons: J. Schmitt (D), M. Arnaud (F), X. Barcons (ES)

Previous Members: C. Sarazin (USA), R. Mushotzky (USA), C. Done (UK), M. Güdel (HE), M. Mendez (NL), M. Cappi (I), F. Haberl (D), G. Rauw (BE), M. Mas Hesse (ES), D. Barret (F), P. Charles (UK), A. Comastri (I), X. Barcons (ES), M. Van der Klis (NL)