

The **MARC** Initiative

A proposed pilot project with AAS Journals

Scientists need to be able to get at the data that result in science
both to *reproduce* results and produce *new* results

“non-reproducible single occurrences are of no
significance to science”

–Karl Popper, *The Logic of Scientific Discovery*, 1934

While it is possible to track down data from a paper, it's often unpleasantly hard

Table 1. Sample of PNe with *HST* WFPC2 or WFC3 H α and [O iii] observations

PN G	Common Name	H α Exp. Time (s)	[O iii] Exp. Time (s)	Proposal ID	PN G	Common Name	H α Exp. Time (s)	[O iii] Exp. Time (s)	Proposal ID
000.3+12.2	IC 4634	1000	1000	6856	084.2+01.0	K 4-55	2460	2440	11956
001.2+02.1	Hen 2-262	280	280	9356	084.9-03.4	NGC 7027*	500	100	11122
001.7-04.4	H 1-55	280	280	9356	089.8-05.1	IC 5117	240	220	8307
002.3-03.4	H 2-37	280	280	9356	096.4+29.9	NGC 6543	800	1600	5403
002.4+05.8	NGC 6369	640	640	9582	106.5-17.6	NGC 7662	200	500	6117, 6943, 8390
002.7-04.8	M 1-42	900	1800	11188	111.8-02.8	Hb 13	1600	1600	11093
002.9-03.9	H 2-39	280	280	9356	138.8+02.8	IC 289	2000	2000	11956
003.5-04.6	NGC 6565	160	320	11122	144.1+06.1	NGC 1501	1600	2000	11956
003.6+03.1	M 2-14	280	280	9356	189.1+19.8	NGC 2371-72	1600	1600	11093
003.8+05.3	H 2-15	280	280	9356	197.8+17.3	NGC 2392	400	400	8499
003.9-03.1	KfL 7	280	280	9356	215.2-24.2	IC 418	888	360	6353, 7501
004.0-03.0	M 2-29	200	160	9356	231.8+04.1	NGC 2438	2080	2080	11827
004.1-03.8	KfL 11	280	280	9356	245.6+03.6	NGC 2346	200	120	7129
004.8-22.7	Hen 2-436	200	160	9356	234.8+02.4	NGC 2440	1600	1600	11090
004.8+02.0	H 2-25	400	400	9356	249.0+06.9	SaS 1-1	200	280	8332
005.2-18.6	SNW2-21	280	280	9356	261.0+32.0	NGC 3242	100	1200	6117, 7501, 8773
006.1+08.3	M 1-20	200	160	9356	261.9+08.5	NGC 2818	1600	2000	11956
006.3+04.4	H 2-18	280	280	9356	272.1+12.3	NGC 3132	400	1200	6221, 8390
006.6+02.0	M 1-31	160	160	9356	285.6+02.7	Hen 2-47	1600	1600	11090
006.8-19.8	Wray 16-423	200	160	9356	285.7-14.9	IC 2448	200	320	11122
006.8+04.1	M 3-15	200	160	9356	294.6+04.7	NGC 3918	140	320	11122
007.5+04.3	Th 4-1	280	280	9356	305.1+01.4	Hen 2-90	2325	1210	8345, 9102
008.2+06.8	Hen 2-260	200	460	9356	307.5-04.9	MyCn 18	600	1400	6221
008.6-02.6	Mac 1-11	280	280	9356	309.1-04.3	NGC 5315	1600	1600	11090
009.3+05.7	Hen 3-1475	830	800	7285	312.3+05.5	NGC 5307	1600	1600	11090
010.0+00.7	NGC 6537	1240	1000	6502	319.6+15.7	IC 4406*	540	600	8726, 9314
010.8+18.0	M 2-9	1240	1000	6502	324.0+03.5	PM 1-89	4900	2900	5404, 5864
010.8-01.8	NGC 6578	160	320	11122	327.8+03.8	NGC 5882	140	380	11122
019.4-05.3	M 1-61	240	320	8307	331.1+05.7	PC 11	200	280	8332
025.3+40.8	IC 4593	1600	1600	11093	331.3-12.1	Hen 3-1357	240	368	6039, 8390
025.8-17.9	NGC 6818	520	1300	6792, 7501, 8773	331.7-01.0	Mz F*	1260	1160	6856, 9050
027.6+04.2	M 2-43	520	800	8307	341.8+05.4	NGC 6153	1000	1200	8594
034.6+11.8	NGC 6572	180	840	7501, 9839	349.5+01.0	NGC 6302*	2100	2220	11504
036.1-57.1	NGC 7293	1800	1800	5977	351.1+04.8	M 1-19	160	160	9356
037.7-34.5	NGC 6709	400	320	8307	351.9-01.9	Wray 16-286	200	280	9356
037.8-06.3	NGC 6790	160	200	8307	352.6+03.0	H 1-8	200	280	9356
043.1+37.7	NGC 6210	320	320	6792	353.5-05.0	JaFu 2*	3600	2000	6780
054.1-12.1	NGC 6891	320	1280	11122	354.5+03.3	Th 3-4	280	280	9356
054.2-03.4	Necklace Nebula*	2000	2000	12675	354.9+03.5	Th 3-6	280	400	9356
057.9-01.5	Hen 2-447	520	1800	8307	355.4-02.4	M 3-14	200	160	9356
060.1-07.7	NGC 6886	1120	1020	7501, 8345, 8773	355.9+03.6	H 1-9	280	280	9356
060.8-03.6	NGC 6853	2000	1000	8307	356.1-03.3	H 2-26	280	280	9356
063.1+13.9	NGC 6720	480	720	7632, 8726	356.5-03.6	H 2-27	360	400	9356
064.1+04.3	M 1-92	680	2080	6533	356.9+04.4	M 3-38	280	280	9356
064.7+05.0	BD+30°3639	484	900	8116, 8390	357.1-04.7	H 1-43	280	280	9356
065.0-27.3	Ps 1*	11420	1040	6751	357.2+02.0	H 2-13	280	280	9356
071.6-02.3	M 3-35	520	1000	8307	358.5-04.2	H 1-46	160	160	9356
073.0-02.4	K 3-76	6	18	6943	358.5+02.9	Wray 16-282	280	280	9356
074.5+02.1	NGC 6881	280	320	8307	358.9+03.4	H 1-19	200	280	9356
082.1+07.0	NGC 6884	1100	560	8345, 8390	359.2+04.7	Th 3-14	280	400	9356
082.5+11.3	NGC 6883	3	40	6943, 6353	359.3-00.9	Hb 5	1300	1000	6502
083.5+12.7	NGC 6826	100	100	6117					

Guerrero+ 2013

We present a catalogue of photometric and structural properties of **228** nuclear star clusters (NSCs) in nearby late-type disc galaxies. These new measurements are derived from a homogeneous analysis of all suitable Wide Field Planetary Camera 2 (WFPC2) images in the Hubble Space Telescope (HST) archive.

We searched MAST for HST WFPC2 or WFC3 coeval H α and [O iii] images of PNe available by March 2013. This search yielded H α and [O iii] images for **103** PNe obtained through the F656N and F502N filters, respectively

Table 1. Main properties of the galaxy sample with measured NSC properties. (All 228 galaxies are listed in the online version of the table).

Galaxy	RA (hh:mm:ss) (2)	Dec. (dd:mm:ss) (3)	$m - M$ (mag) (4)	$E(B - V)$ (mag) (5)	B (mag) (6)	$B - V$ (mag) (7)	I (mag) (8)	R_{25} (kpc) (9)	ϵ (10)	PA (deg) (11)	Incl. (deg) (12)	Type (13)	t (14)
DDO078	10:26:27.78	67:39:25.1	27.82	0.018	15.8	-	-	1.063	0.00	-	0.0	I	10.0
IC 4710	18:28:37.95	-66:58:56.1	29.75	0.079	12.51	0.57	11.19	4.494	0.15	-	34.9	Sm	8.9
NGC 1258	3:14:05.50	-21:46:27.3	32.28	0.022	13.88	-	12.35	5.870	0.26	20.5	43.7	SABc	5.7
NGC 3319	10:39:09.47	41:41:12.5	30.7	0.013	11.77	0.41	11.46	7.289	0.51	36.	62.7	SBC	5.9
NGC 5334	13:52:54.44	-1:06:52.4	32.78	0.041	12.97	-	12.19	17.729	0.28	18.2	44.8	Sc	5.2
...

Notes: The values for all columns are taken from HyperLeda, except for columns 4 and 5, which are taken from NED. More specifically, the distance modulus $m - M$ in column 4 is the median value in NED. If the latter is not available, we adopt the redshift-derived distance modulus, modz, from HyperLeda.

Georgiev & Böker 2013

At Space Telescope there is 1 FTE spent trying to piece this all together; without the authors it's hard!

Assign Dataset Names to HST papers

Set status

- Not Started
- In progress (P)
- Initial Entry (E)
- Question (Q)
- Best we could -Partially Impossible (B)
- Impossible (I)
- Complete (C)
- Recheck (R)

DSN Comments: *The content cannot contain http:*

It might be possible to track down some of the specific datasets for this paper, but it would be very time consuming with possibly little payoff. I'm tagging as impossible for now. -Sara

Person entering information

jillag

Update HSTDSN status

HST

PaperCentral

There are 47 combinations of program ID and Instrument for [2014MNRAS.441.3570G](#)

There are 8 poss

AddDSN Mark all

Mark	DataSet Name	Association Name	Target	RA	Dec	Start Time	Exposure Length	Inst Config	Filter/Grating	PI Name
<input type="checkbox"/>	U9OX0301M									
<input type="checkbox"/>	U9OX0302M									
<input type="checkbox"/>	U9OX0303M									
<input type="checkbox"/>	U9OX0304M		SN2006MY	12 43 39.302	+16 23 36.22	2007-04-27 00:02:16	300	WFPC2	F555W	SMARTT
<input type="checkbox"/>	U9OX0305M		SN2006MY	12 43 39.302	+16 23 36.22	2007-04-27 01:01:16	500	WFPC2	F814W	SMARTT
<input type="checkbox"/>	U9OX0306M		SN2006MY	12 43 39.302	+16 23 36.22	2007-04-27 01:15:16	700	WFPC2	F814W	SMARTT
<input type="checkbox"/>	U9OX0307M		SN2006MY	12 43 39.302	+16 23 36.22	2007-04-27 02:37:16	700	WFPC2	F450W	SMARTT
<input type="checkbox"/>	U9OX0308M		SN2006MY	12 43 39.302	+16 23 36.22	2007-04-27 02:51:16	700	WFPC2	F450W	SMARTT

AddDSN Mark all Unmark all

There are 21 possible datasets found for [10829](#) / WFPC2

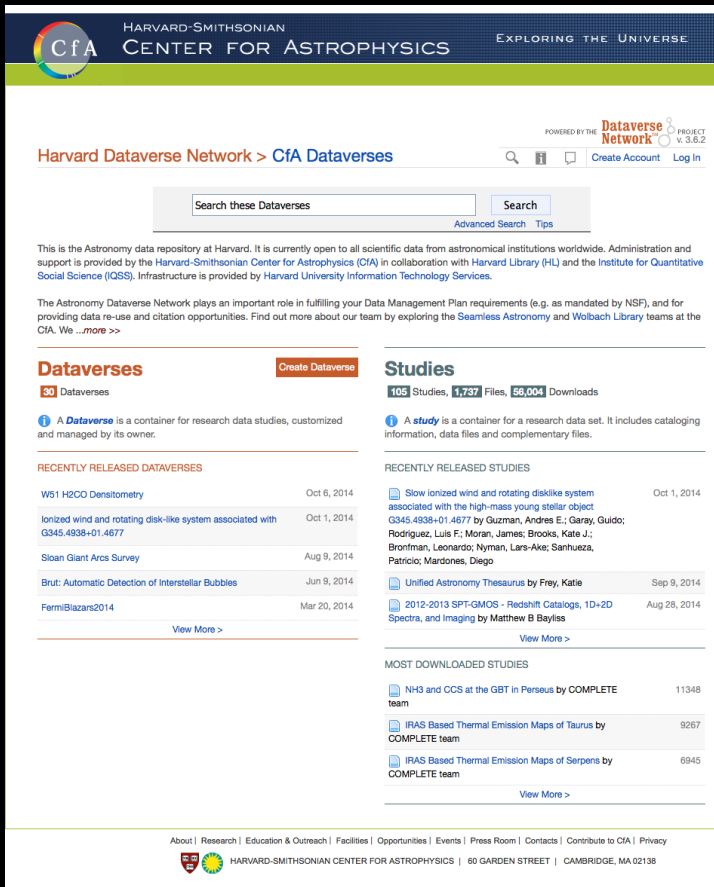
AddDSN Mark all Unmark all

Mark	DataSet Name	Association Name	Target	RA	Dec	Start Time	Exposure Length	Inst Config	Filter/Grating	PI Name
<input type="checkbox"/>	U9NP0201M		NGC6509	17 59 22.171	+06 16 58.39	2007-04-22 17:24:16	600	WFPC2	F606W	MARTINI
<input type="checkbox"/>	U9NP0202M		NGC6509	17 59 22.194	+06 16 58.50	2007-04-22 17:40:16	600	WFPC2	F606W	MARTINI
<input type="checkbox"/>	U9NP0203M		NGC6509	17 59 22.216	+06 16 58.61	2007-04-22 17:56:16	600	WFPC2	F606W	MARTINI
<input type="checkbox"/>	U9NP0401M		NGC4519	12 33 27.424	+08 39 38.17	2007-12-03 04:18:17	600	WFPC2	F606W	MARTINI
<input type="checkbox"/>	U9NP0402M		NGC4519	12 33 27.446	+08 39 38.02	2007-12-03 04:34:17	600	WFPC2	F606W	MARTINI

It might be possible to track down some of the specific datasets for this paper, but it would be very time consuming with possibly little payoff. I'm tagging as impossible for now. -Sara

A "Solution" without MAST: or data

 : a broadly used, permanent, citable, URL (*Basically*)

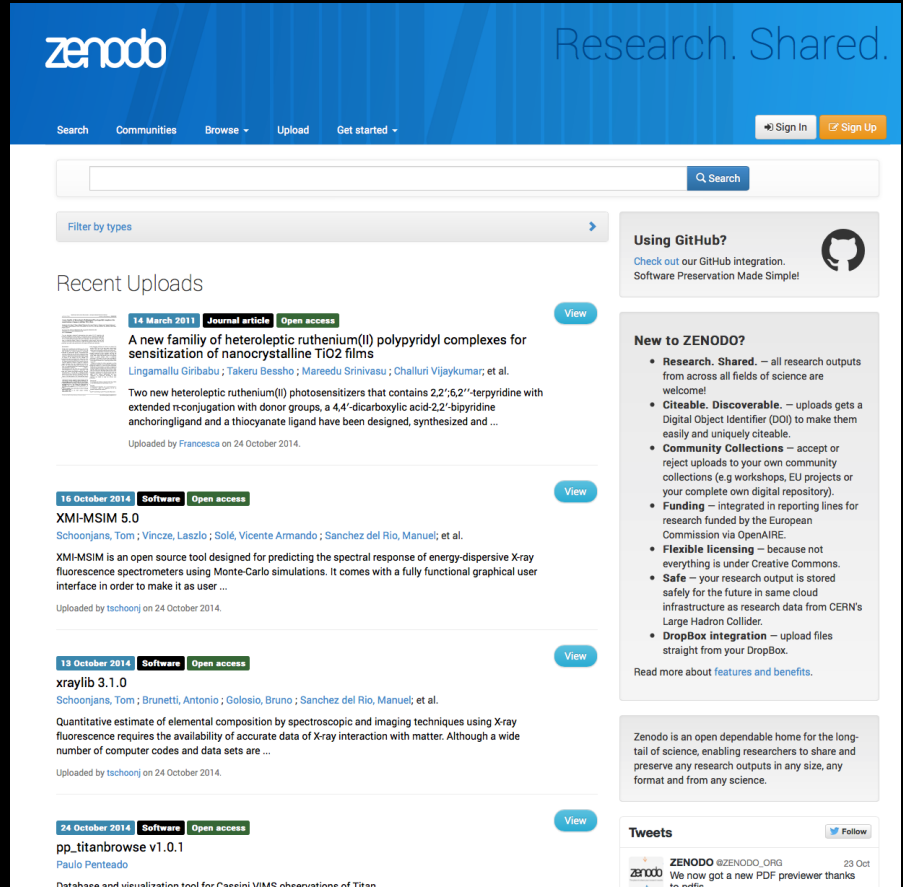


The screenshot shows the Harvard Dataverse Network interface. At the top, it features the Harvard-Smithsonian Center for Astrophysics (CfA) logo and the text "EXPLORING THE UNIVERSE". Below this, it says "Harvard Dataverse Network > CfA Dataverses". A search bar is present with the text "Search these Dataverses" and a "Search" button. There are also links for "Advanced Search" and "Tips".

The main content area is divided into two columns. The left column is titled "Dataverses" and contains a "Create Dataverse" button and a list of "RECENTLY RELEASED DATERVERSES". The right column is titled "Studies" and contains a "Create Study" button and a list of "RECENTLY RELEASED STUDIES".

At the bottom of the page, there is a footer with navigation links: "About | Research | Education & Outreach | Facilities | Opportunities | Events | Press Room | Contacts | Contribute to CfA | Privacy".

Harvard Dataverse



The screenshot shows the Zenodo website interface. At the top, it features the Zenodo logo and the text "Research. Shared.". Below this, there are navigation links: "Search", "Communities", "Browse", "Upload", and "Get started". There are also buttons for "Sign In" and "Sign Up".

The main content area is divided into two columns. The left column is titled "Recent Uploads" and contains a list of recent uploads, including "A new family of heteroleptic ruthenium(II) polypyridyl complexes for sensitization of nanocrystalline TiO2 films" and "XMI-MSIM 5.0". The right column is titled "Using GitHub?" and contains a "New to ZENODO?" section with a list of features and benefits.

At the bottom of the page, there is a "Tweets" section with a "Follow" button.

Zenodo

Places similar to STScI have DOI'd their own content: it works, but no one uses it!

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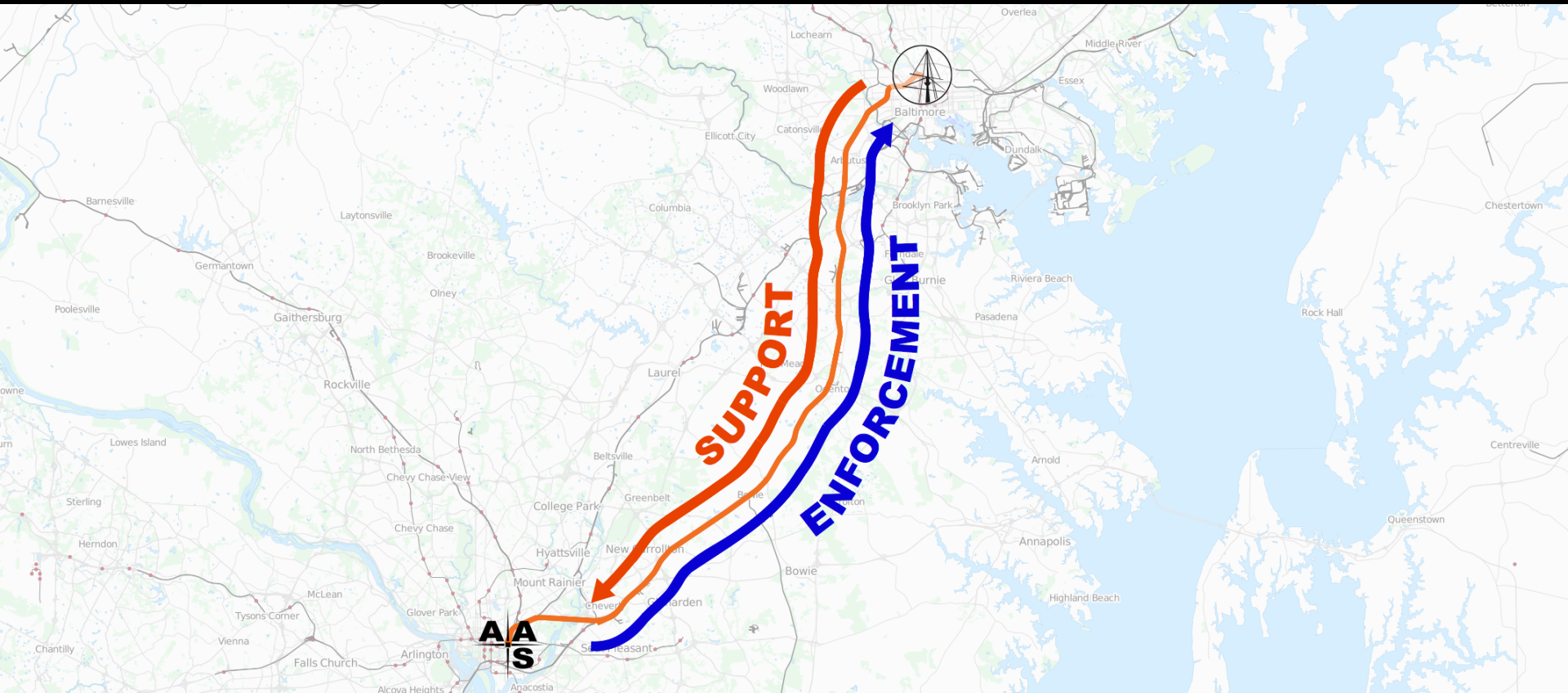
The Problem: Without significant encouragement authors
won't link data in their papers

**We Astronomers
are
Lazy***

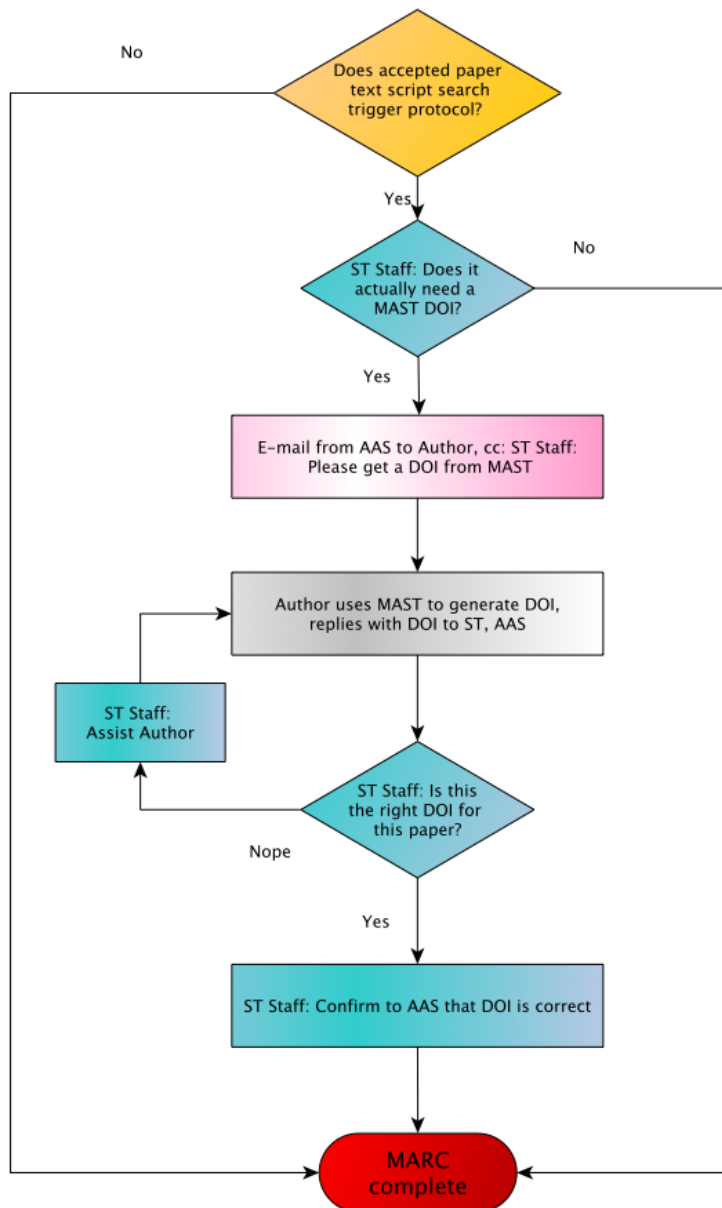
**[citation needed]*

The **MARC** Initiative

connecting the AAS Journals to MAST



We can construct a simple (mock) workflow for AAS Journals, STSci/MAST, and authors



Robot

ST MAST Staff

AAS Staff

Author

What might this look like for Authors at MAST?

Select Collection: All MAST Observations
Search: m101
Examples: M60, 13:29:56.47-13:50 r=1m, More Examples..., Random Search

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Start Page: MAST: m101
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Product Type
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 calibration (17 of 17)
 image (2309 of 2309)
 spectrum (370 of 370)

Mission
Order Values by Count
 ELVE (2 of 2)
 FUSE (7 of 7)
 GALEX (12 of 12)
 HST (1867 of 1867)
 HUT (2 of 2)
 IUE (35 of 35)
 SWIFT (771 of 771)

Instrument
Order Values by Count
 ACS/HRC (6 of 6)
 ACS/SBC (17 of 17)
 ACS/WFC (235 of 235)
 DS/S (2 of 2)
 FOC/96 (24 of 24)
 FOS/BL (63 of 63)
 FOS/RD (155 of 155)
 FLUJ (9 of 9)
 GALEX (12 of 12)
 LWP (1 of 1)
 LWR (15 of 15)
 NICMOS/NIC1 (24 of 24)
 NICMOS/NIC2 (41 of 41)
 NICMOS/NIC3 (67 of 67)
 STIS/CCD (329 of 329)
 STIS/FLUJ-MAMA (38 of 38)
 STIS/NUV-MAMA (50 of 50)
 SWP (19 of 19)
 UVOT (771 of 771)
 WFC3/IR (8 of 8)
 WFC3/UVIS (79 of 79)
 WPC/PC (3 of 3)
 WPC/WFC (33 of 33)
 WPC2/PC (279 of 279)
 WPC2/WFC (422 of 422)

Waveband
Order Values by Count

Actions	Preview	Mission	Instrument	Filters	Waveband	Target Name	Observation ID	RA	Dec	Principal Investigator	Start Time	End Time	Exposure Time	Release Date	Proposal ID	Project
		SWIFT	UVOT	U	UV, OPTICAL	M101ULX-1	00030896001	14:03:32.273	+54:19:55.32		2007-03-01	2007-03-01	273.4056414...			
		SWIFT	UVOT	V	UV, OPTICAL	M101ULX-1	00030896001	14:03:33.373	+54:19:55.32		2007-02-28	2007-02-28	258.6266708...			
		SWIFT	UVOT	B	UV, OPTICAL	M101ULX-1	00030896001	14:03:33.373	+54:19:55.32		2007-03-08	2007-03-08	177.6300223...			
		SWIFT	UVOT	V	UV, OPTICAL	M101ULX-1	00030896001	14:03:33.373	+54:19:55.32		2007-03-08	2007-03-08	350.1563698...			
		SWIFT	UVOT	U	UV, OPTICAL	M101ULX-1	00030896001	14:03:33.373	+54:19:55.32		2007-03-08	2007-03-08	350.1672356...			
		SWIFT	UVOT	U	UV, OPTICAL	M101ULX-1	00030896003	14:03:41.672	+54:19:41.86		2007-03-14	2007-03-14	261.5802602...			
		SWIFT	UVOT	B	UV, OPTICAL	M101ULX-1	00030896003	14:03:41.672	+54:19:41.86		2007-03-15	2007-03-15	7.916145683...			
		SWIFT	UVOT	V	UV, OPTICAL	M101ULX-1	00030896003	14:03:41.672	+54:19:41.86		2007-03-14	2007-03-14	261.5802406...			
		SWIFT	UVOT	U	UV, OPTICAL	M101ULX-1	00030896004	14:03:32.913	+54:21:13.91		2007-03-21	2007-03-21	1226.644009...			

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Product Type Order Values by Count <input type="checkbox"/> image (8 of 24) <input type="checkbox"/> spectrum (5 of 7)	Product Type Order Values by Count <input type="checkbox"/> image (8 of 24) <input type="checkbox"/> spectrum (5 of 7)
Observation ID Order Values by Count <input type="checkbox"/> 00030896001 (2 of 6) <input type="checkbox"/> 00030896002 (3 of 9) <input type="checkbox"/> 00030896003 (3 of 9) <input type="checkbox"/> LBSNO6040 (5 of 7)	Observation ID Order Values by Count <input type="checkbox"/> 00030896001 (2 of 6) <input type="checkbox"/> 00030896002 (3 of 9) <input type="checkbox"/> 00030896003 (3 of 9) <input type="checkbox"/> LBSNO6040 (5 of 7)
Description	Description

AstroView
14:03:12.545 +54:20:56.22
14:03:12.545 +54:20:56.22
RA DEC
hh:mm:ss
hh:mm:ss

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Filters



Table View

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Mission

Order Values by Count

- HST (5 of 7)
- SWIFT (8 of 24)

Product Type

Order Values by Count

- image (8 of 24)
- spectrum (5 of 7)

Observation ID

Order Values by Count

- 00030896001 (2 of 6)
- 00030896002 (3 of 9)
- 00030896003 (3 of 9)
- LB5N06040 (5 of 7)

Description

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<input checked="" type="checkbox"/>	1	SWIFT	image	00030896001	Level 2 image
<input checked="" type="checkbox"/>	2	SWIFT	image	00030896002	Level 2 image
<input checked="" type="checkbox"/>	3	SWIFT	image	00030896003	Level 2 image
<input checked="" type="checkbox"/>	4	SWIFT	image	00030896001	Level 2 image
<input checked="" type="checkbox"/>	5	SWIFT	image	00030896003	Level 2 image
<input checked="" type="checkbox"/>	6	SWIFT	image	00030896002	Level 2 image
<input checked="" type="checkbox"/>	7	SWIFT	image	00030896002	Level 2 image
<input checked="" type="checkbox"/>	8	SWIFT	image	00030896003	Level 2 image
<input checked="" type="checkbox"/>	9	HST	spectrum	LB5N06040	DADS ASN file
<input checked="" type="checkbox"/>	10	HST	spectrum	LB5N06040	DADS JIF file
<input checked="" type="checkbox"/>	11	HST	spectrum	LB5N06040	DADS JIT file
<input checked="" type="checkbox"/>	12	HST	spectrum	LB5N06040	DADS TRL file
<input checked="" type="checkbox"/>	13	HST	spectrum	LB5N06040	DADS XSM file

Questions for the MUG

- Would the ability to make a permanent reference to an arbitrary collection of data be useful to you beyond the context of the journals?
- Would being asked by ApJ/AJ to use MAST to make a link to your data be an undue burden?
- Are there other DOI / data-linking features that could be useful to MAST users?