

# Radio, IR and Optical Monitoring of AGNs

Lars Fuhrmann

ENIGMA Torino/Perugia Team

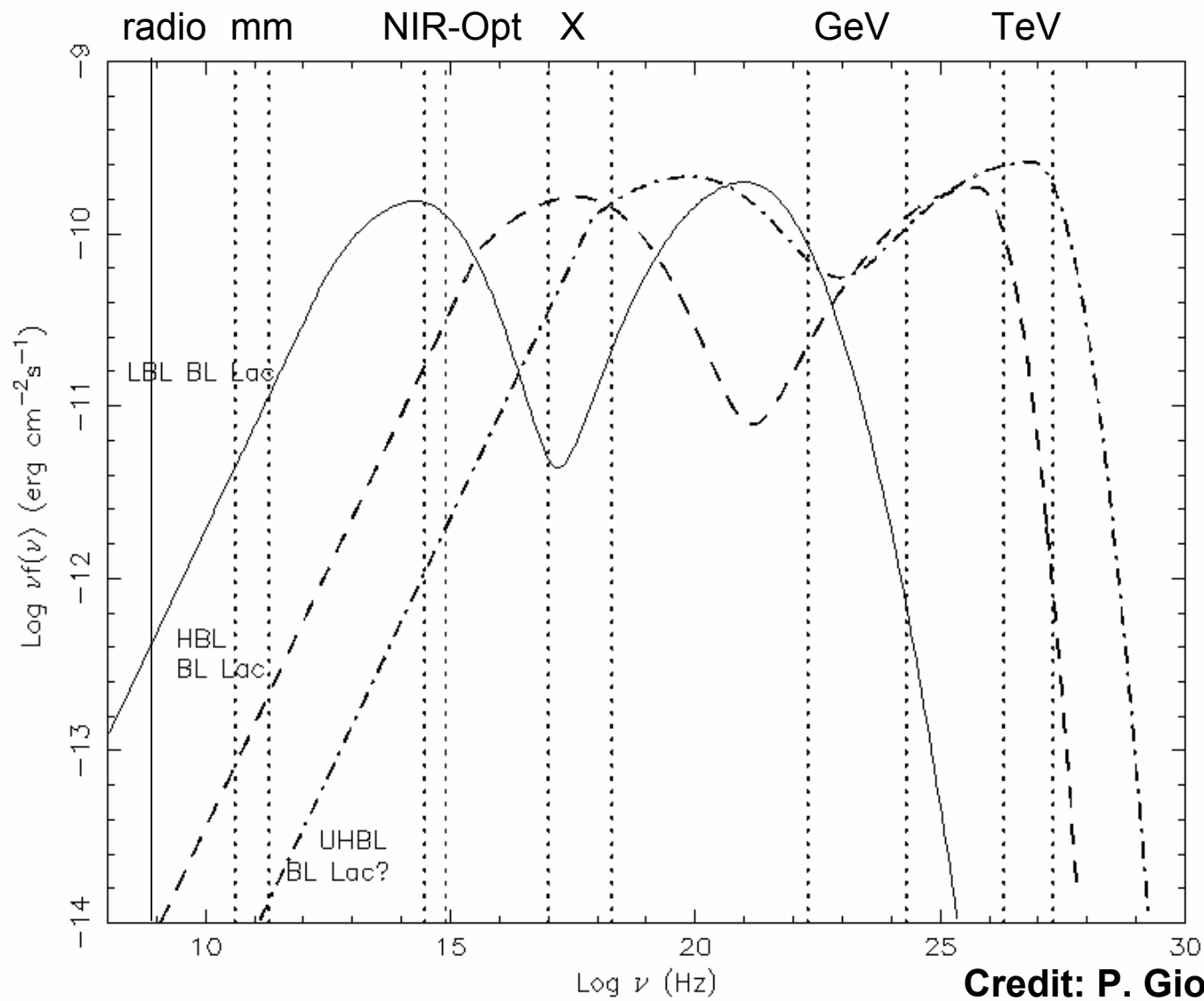
- multi-frequency monitoring of a small blazar sample
- Agile: multi-frequency support from the ground

## At present:

- simultaneous multi-frequency monitoring of blazar variability since December 2004
- radio: Noto and Medicina at 1.4, 5, 8, 22 and 32 GHz
- optical: Torino and Perugia
- near-IR: Teramo
- 2 times per month

- source list:

0222+430	0219+428	3C66A	02:22:39.61	+43:02:07.8
0238+166	0235+164		02:38:38.93	+16:36:59.3
0721+713	0716+714		07:21:53.45	+71:20:36.4
0854+201	0851+202	OJ287	08:54:48.87	+20:06:30.6
0921+623	0917+624		09:21:36.23	+62:15:52.2
0958+655	0954+658		09:58:47.24	+65:33:54.8
1229+020	1226+023	3C273	12:29:06.70	+02:03:08.6
1256-057	1253-055	3C279	12:56:11.16	-05:47:21.5
1635+380	1633+382		16:35:15.49	+38:08:04.5
1642+394	1641+399	3C345	16:42:58.81	+39:48:37.0
1819+384	1817+384		18:19:27.10	+38:45:08.0
2202+422	2200+420	BLLac	22:02:43.29	+42:16:40.0
2253+161	2251+158	3C454	22:53:57.75	+16:08:53.6



**Credit: P. Giommi**

# Future: Ground-Support for Agile:

- “Proposal“: joint project of a radio, IR and optical monitoring of bright sources in the AGILE field of view
- strategy:
  - monitoring of  $\sim 6$  sources per AGILE pointing
  - sampling: once per week
- coverage:
  - radio: 1.4 – 32 GHz
  - near-IR: 1.1 – 2.5  $\mu\text{m}$
  - optical: 0.45 – 0.8  $\mu\text{m}$
  - AGILE: 10 – 30 keV,  
30 MeV – 50 GeV

# source list:

ID	Name	Other Name	RAJ2000	DEJ2000
1	3EG J0222+4253	3C 66A	02 22 39.48	+43 02 08.4
2	3EG J0237+1635	0235+164	02 38 38.89	+16 36 58.6
3	3EG J0340-0201	CTA 026	03 39 30.94	-01 46 35.8
4	3EG J0412-1853	0414-189	04 16 36.59	-18 51 08.4
5	3EG J0422-0102	0420-014	04 23 15.80	-01 20 32.4
6	3EG J0442-0033	NRAO 190	04 42 38.62	-00 17 42.8
7	3EG J0456-2338	0454-234	04 57 03.18	-23 24 52.0
8	3EG J0459+0544	0459+060	05 02 15.46	+06 09 08.2
9	3EG J0500-0159	0458-020	05 01 12.81	-01 59 12.8
10	3EG J0530+1323	0528+134	05 30 56.44	+13 31 55.3
11	3EG J0737+1721	0735+178	07 38 07.38	+17 42 19.6
12	3EG J0828+0508	0829+046	08 31 48.89	+04 29 38.5
13	3EG J0845+7049	0836+710	08 41 24.46	+70 53 41.4
14	3EG J0853+1941	OJ287	08 54 48.87	+20 06 30.7
15	3EG J0958+6533	0954+658	09 58 47.26	+65 33 54.77
16	3EG J0952+5501	0954+556	09 57 38.18	+55 22 57.4
17	3EG J1200+2847	1156+295	11 59 31.80	+29 14 44.3
18	3EG J1224+2118	1222+216	12 24 54.62	+21 22 47.2
19	3EG J1229+0210	3C 273	12 29 06.70	+02 03 08.6
20	3EG J1230-0247	1229-021	12 32 00.13	-02 24 04.1
21	3EG J1255-0549	3C 279	12 56 11.15	-05 47 20.1
22	3EG J1339-1419	1334-127	13 37 39.83	-12 57 24.6
23	3EG J1512-0849	1510-089	15 12 50.54	-09 06 00.9
24	3EG J1608+1055	4C +10.45	16 08 46.13	+10 29 08.2
25	3EG J1614+3424	1611+343	16 13 41.08	+34 12 47.7
26	3EG J1626-2519	1622-253	16 25 46.93	-25 27 39.1
27	3EG J1635+3813	4C +38.41	16 35 15.51	+38 08 04.8
28	3EG J1733-1313	NRAO 530	17 33 02.66	-13 04 49.1
29	3EG J1744-0310	1741-038	17 43 58.83	-03 50 04.9
30	3EG J1911-2000	1908-201	19 11 09.69	-20 06 55.5
31	3EG J2025-0744	2022-077	20 25 40.69	-07 35 53.0
32	3EG J2036+1132	2032+107	20 35 22.32	+10 56 07.1
33	3EG J2202+4217	BL LAC	22 02 43.29	+42 16 40.1
34	3EG J2232+1147	CTA 102	22 32 36.42	+11 43 50.4
35	3EG J2254+1601	2251+158	22 53 57.70	+16 08 53.4
36	3EG J2321-0328	2320-035	23 23 31.98	-03 17 05.4
37	3EG J2358+4604	2351+456	23 54 21.72	+45 53 04.4

- 3EG catalog
- $S_{1.4\text{GHz}} > 800 \text{ mJy}$
- $\delta > -25^\circ$

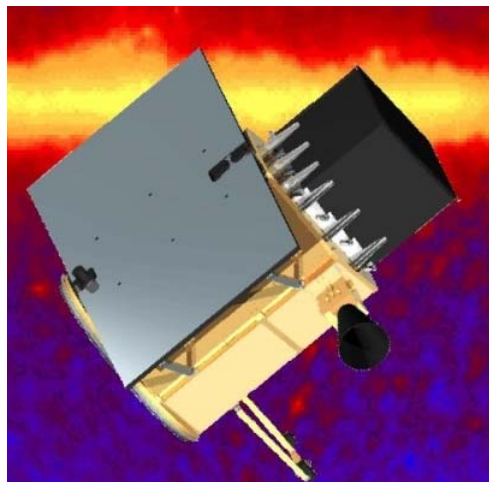
# “MAPT-NT”



Torino 1 m



Noto/Medicina 32 m



AZT-24 – Campo Imperatore 1.08m



Coloti – Perugia 0.8 m

# Participants

- INAF – OA Torino: C. M. Raiteri, M. Villata, U. Bach (optical)
- Università di Perugia: G. Tosti, L. Fuhrmann, A. Cucchiara (optical and radio)
- INAF – OA Teramo – M. Dolci (near – IR)
- Noto Radio Telescope: P. Leto et al.



ok, let's go...