



Narrow-line Seyfert 1 galaxies: an amazing class of AGN

[A. Tarchi](#), [P. Castangia](#), [A. Columbano](#), [F. Panessa](#), [J.A. Braatz](#)

(Submitted on 26 Jul 2011)

[Abridged] Narrow-line Seyfert 1 (NLS1) galaxies are a class of active galactic nuclei (AGN) that have all the properties of type 1 Seyfert galaxies but show peculiar characteristics, including the narrowest Balmer lines, strongest Fe II emission, and extreme properties in the X-rays. Line and continuum radio observations provide an optimal tool to access the (often) optically obscured innermost regions of AGN and reveal the kinematics of the gas around their central engines. We investigate the interplay between the peculiar NLS1 class of AGN and the maser phenomenon, to help us understand the nature of the maser emission in some NLS1s where water maser emission has been detected. We observed a sample of NLS1 galaxies with the Green Bank Telescope in a search for water maser emission at 22 GHz. We also reduced and analysed archival Green Bank Telescope and Very Large Array data and produced 22-GHz spectra for the five NLS1 galaxies with detected maser emission. In particular, we imaged the maser and nuclear radio continuum of NGC5506 at subarcsec scales with the Very Large Array. We discovered maser emission in two NLS1 galaxies: IGRJ16385-2057, and IRAS03450+0055. In addition to the three previously known maser detections in the NLS1s Mrk766, NGC4051, and NGC5506, this yields a water maser detection rate in NLS1 galaxies of ~7% (5/71). This value rises significantly to ~21% (5/24) when considering only NLS1 galaxies at recessional velocities less than 10000 km/s. For NGC4051 and NGC5506, we find that the water maser emission is located within 5 and 12 pc, respectively, of nuclear radio continuum knots, which are interpreted as core-jet structures.

Comments: 11 pages, 5 figures, 2 tables. Accepted by Astronomy & Astrophysics

Subjects: **Cosmology and Extragalactic Astrophysics (astro-ph.CO)**

Cite as: [arXiv:1107.5155](#) [astro-ph.CO]

(or [arXiv:1107.5155v1](#) [astro-ph.CO] for this version)

Submission history

From: Andrea Tarchi [[view email](#)]

[v1] Tue, 26 Jul 2011 10:10:59 GMT (250kb)

[Which authors of this paper are endorsers?](#)

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

astro-ph.CO

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

[astro-ph](#)

References & Citations

- [INSPIRE HEP](#)
([refers to](#) | [cited by](#))
- [NASA ADS](#)

Bookmark([what is this?](#))



