

High Time Resolution Astrophysics

OPTICON Network Activity (NA) 3 **Structuring European Astronomy**

Coordinator NA3: John Davies

WP1: ELT, WP2: UV Network, WP3: HTRA
WP4: Interoperability, WP5 Key Technologies

Coordinator WP3: S. Wagner, H. Spruit

HTRA

WP3: High Time Resolution Astrophysics. (HTRA): The participants will form working groups to carry out and report on the following activities: Test existing detectors in different domains (e.g. temporal resolution and signal to noise ratio) and determine figures of merit for detectors already existing or under development for HTRA. Review existing software for HTRA data handling and compare them to the needs for common-user application, standardised procedures, and the demands of new detectors and instruments. Develop concepts for HTRA instrumentation on medium-sized and large telescopes. Compile a report of the state-of-the-art in HTRA astrophysics for different waveband regimes, the role of multi-frequency approaches, and challenges posed from theoretical astrophysics. An international conference will be organised.

HTRA

Instrumentation:

Different methods used to cover the large parameter space (100ns – 1s).

Interface with JRA3 (L3, PN, APD)

State of the “other” technologies.

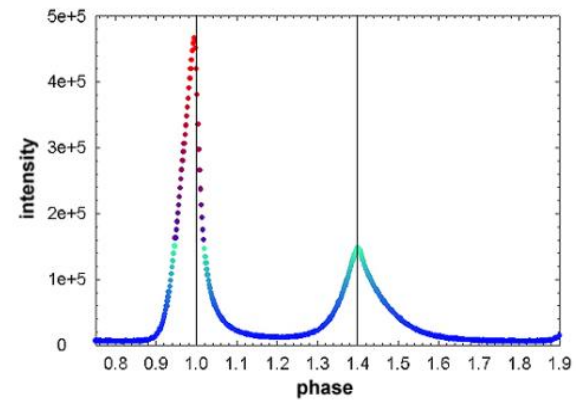
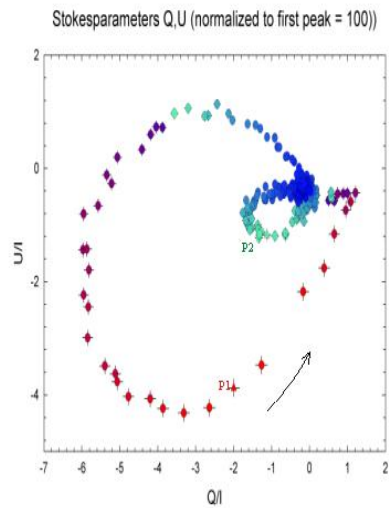
Methods:

Timing, statistical methods to extract periodicities, characterise temporal properties

HTRA

Temporal Signature

-> Astrophysics



HTRA

Science

**Wide range of topics, phenomena, mechanisms,
source classes, time-scales in HTRA.**

**Many independent lines of research
(instabilities in plasma physics,
astroseismology, accreting sources,
nonthermal radiation mechanisms
(e.g. Pulsars, GRBs, acceleration),
quantum astrophysics).**

HTRA White Book

White book on TRA

“Astrophysics in the 4th dimension”

**Science case for time-resolved studies,
state-of-the-art technology and analyses**

**A collection of ~20 reviews resulting from a
~1 week meeting of ~20 specialists
to be organized in 2005
(Spruit, Wagner)**

HTRA

N3-WP3: Communications

Outside/OPTICON:

**ww.lsw.uni-heidelberg.de/projects/tra/htra.html
network activities at conferences (e.g. JENAM)**

Internal:

**Annual network meeting
meeting/conference: White book on HTRA**

HTRA

Organisational Issue:

Majority of network participants does not have national funding agencies receiving network money from OPTICON.

Meeting participants for White Book Meetings must have “guaranteed funding” to make this a success.