

**KU LEUVEN**

# **KU Leuven VLTi expertise center**

Denis Defrère

# Overview

KU Leuven

Coordinator: D. Defrère

Local expertise: J. Kluska, H. Sana, H. Van Winckel



- One of interferometry OPTICON-JRA (WP8) lead partners
- Part of Opticon Radionet Pilot (ORP), 3 man-months to support EC
- Main area of interferometry-related expertise:
  - ✓ Interferometric imaging techniques
  - ✓ High-contrast applications (CHARA, VLTI, LBTI, KI)
  - ✓ End-to-end instrument simulation (VLTI/GENIE, Darwin/TPF)
  - ✓ Advanced data reduction techniques (e.g., self-calibration)
  - ✓ Nulling testbench (Hi-5)
  
  - ✓ Stellar surface
  - ✓ Massive stars
  - ✓ Young stellar objects
  - ✓ Circumstellar environment (AGB stars, exozodiacal disks)
  - ✓ Binary detection

# Center capabilities

email  
Visits

## **MATISSE**

Proposal prep & obs  
Data reduction

Model fitting  
(geometric models)

## **GRAVITY**

Proposal prep & obs  
Data reduction

Model fitting  
(gemometric models)

one support  
scientist

ESO pipelines on remote server

2015 Mac pro with 64 Go RAM and 12 Tb of disk space  
In the process of buying a new local machine

# Recent activities

- **Phase1 proposal preparation, OB preparation, and data interpretation** for GRAVITY program on WR48 (**Theta Muscae**, [099.D-0440\(A\)](#), [0101.D-0732\(A\)](#), PI: E. Gosset @ Uliège).
- Visitor: Narges JAMIALAHMADI (IPM Institute, Fizeau exchange visitor program): geometric modelling of 51 Oph (PIONIER)
- **Support from Antoine critical** for more advanced requests (spectrum extraction of each component)
- Dissemination;
  - Networking activities (Belgian universities, BELSPO)
  - EC websites (institute and personal website)

# Future activities and other news

- Imaging Large Programme on disks (PI: Jacques Kluska)
- Developing a high-contrast nulling instrument for the visitor focus (ERC CoG grant, 2020-2025)
- Working on the Manhattan system Coude extension with J. Woillez (together with GRAVITY+ team)
- Will hire a postdoc to support EC (3 man-months, 2021-2024).
- Organization of **Expertise Centre Meeting** and **VLTI Open Day** in Leuven (**2023**)
- Contact: D. Defrère (denis.defrere@kuleuven.be), J. Kluska (jacques.kluska@kuleuven.be)