Binocular Observing with LUCIFER
scheduling and synchronisation

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LUCIFER Software Development

• Bochum:
  - Alexander Pramskiy, Alexander Becker, Björn Kleemann, Dominik Bomans, Ralf-Jürgen Dettmar
  - instrument control software (LCSP, LMC)

• Heidelberg:
  - detector control software (GEIRS)
  - exposure time calculator (ETC)
  - script preparation (LSC) / checking software

• Garching:
  - mask preparation software (LMS)

• Tucson:
  - telescope software (TCS, IIF, IIFServer/ice)
Software Overview / Current Status

- Java / distributed system
- multi-tier architecture
  - some changes to Control and Instrument-Tier (new detector)
  - System, Instrument and Control-Tier ready for binocular observing
  - tests of new telescope and readout services are missing
  - Operation-Tier needs more changes / extensions than expected
Software Overview / Current Status

- new engineering access
• new engineering access
Software Overview / Current Status

- new engineering access
The Challenges of Binocular Observations

“mit dem Zweiten sieht man besser”

Witali Klitschko, 2003
The Challenges of Binocular Observations
The Challenges of Binocular Observations

- synchronization is done by telescope
- no scheduling / no data exchange
- two independent telescopes!
The Challenges of Binocular Observations

• current observing
The Challenges of Binocular Observations

- current observing / existing tools not used
The Challenges of Binocular Observations

• current observing

```bash
> ./executeLUCI1Script.sh my_observation.txt
```
The Challenges of Binocular Observations

• if everything is ok, binocular observations are easy, **but...**

• how do we execute scripts in parallel?
• how do we synchronize actions?
• how can we determine what went wrong?
• what can we do in case of failures / error?

• currently all complexity is shifted to preparation phase!
The Challenges of Binocular Observations

- a new data structure to describe observations
The Challenges of Binocular Observations

- a new central scheduler
The Challenges of Binocular Observations

- a new central scheduler

![Diagram showing observation block #N with synchronized setup and instrument readout for left and right arms.](image-url)
The Challenges of Binocular Observations

• to solve the issues we need:
  − new manager for instrument, readout and telescope
  − a central scheduler
  − a different way of describing observations
  − an observation preparation tool

visit us at the poster: Pramskiy + Polsterer