



**Gaining physics insights through
the analysis of various messengers
requires a careful theoretical basis**

Martin Pohl



Introduction

Since the 1990's: Multifrequency astronomy

Since the 2010's: Multimessenger astronomy



Introduction



Since the 1990's: Multifrequency astronomy

Since the 2010's: Multimessenger astronomy

Since the beginning: Theory



Theory in MMA



Analytical work indispensable for understand scaling
and for linking with observations

But also stand-alone, for example Blandford-Znajek process

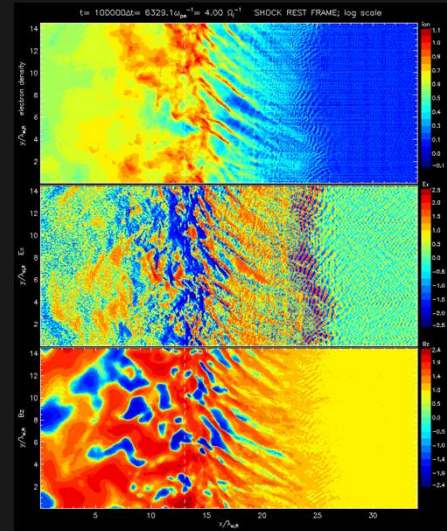


Theory in MMA



Simulation work

- can start from first principles
- uniquely suited for non-linear behavior
- includes time-domain information



Theory in MMA



Analytical work indispensable for understand scaling

Simulation work uniquely suited for non-linear behavior

Both need each other ... better do both

Funding is organized with university-scale groups in mind



Simulations



Simulations are computer experiments, needing similar support

Open-source and freely usable codes are desirable (e.g., AM³)
... but a lot of work

Developing and optimizing large codes go beyond small groups



Example for support



Permanent
Funding

Two-stage
Application

Community-
controlled

ADACS
ASTRONOMY DATA AND COMPUTING SERVICES

Training Services ▾ Software Services ▾ Computing and Data Services Events ▾ News ⓘ

Astronomy Data And Computing Services

Providing astronomy-focused training, support and expertise on data and compute

TRAINING SERVICES
We provide astronomy-specific training to allow astronomers to maximise the scientific return from data and computing infrastructure.
We have a variety of online and face-to-face material.

[Read More](#)



Take-home messages



Centralized infrastructural support for large simulations

**Was already asked for in *Denkschrift 2017*,
but only big data received new support (NFDI, ERUM-DATA)**

**Can DZA be a platform for centralized simulation support
through hosting, technical optimization, and open-source service?**

**Scientific projects still based at universities,
but code management at DZA?**