



bw|HPC – C5

bwForTreff

bwHPC user meeting

bwHPC Competence Center MLS&WISO
Universitätsrechenzentrum Heidelberg
Rechenzentrum der Universität Mannheim



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

Hochschule
für Technik
Stuttgart



Hochschule Esslingen
University of Applied Sciences

Universität
Konstanz



UNIVERSITÄT
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Universität Stuttgart

EBERHARD KARLS
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KIT
Karlsruher Institut für Technologie



ulm university universität
uulm

Funding:



Baden-Württemberg

MINISTERIUM FÜR WISSENSCHAFT, FORSCHUNG UND KUNST

www.bwhpc-c5.de

What is bwForTreff?

Participants

- Users of bwHPC systems in Heidelberg and Mannheim
- Students and scientists interested in HPC

Scope

- Introduction to bwHPC
- Status of bwHPC clusters
- Introduction of new bwHPC systems

More offers for HPC Users

HPC Courses

- Duration: 1/2 day up to 1 week
- Courses from our bwHPC partners in Baden-Württemberg
- Courses in Heidelberg and Mannheim. Plans for 2015:
 - Linux for HPC, HPC data management
 - Parallel R, Parallel Java, GASP

HPC User Contributions

- bwHPC Symposium once a year
- Participate with a talk or a poster
- Meet other HPC users from Baden-Württemberg

bwForTreff 12.11.2014 - Agenda

| Time | Topic |
|-------|---|
| 16:15 | Introduction bwHPC (H. Kredel, MA) |
| 16:45 | Introduction bwUniCluster (S. Richling, HD) |
| 17:30 | Discussion |
| 18:00 | End |



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bwHPC and bwHPC-C5



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What is bwHPC/bwHPC-C5?

- bw = Baden-Württemberg
- bwHPC = Strategy for high performance computing in BW for 2013 to 2018 (in particular for Tier 3)
- bwHPC-C5 = **Federated** user and IT **support activities** for bwHPC



bwHPC - Tier Classification

Europäische Höchstleistungsrechenzentren
(Tier 0) Gauss Center for Supercomputing



Nationale Höchstleistungsrechenzentren
(Tier 1) HLR@GCS

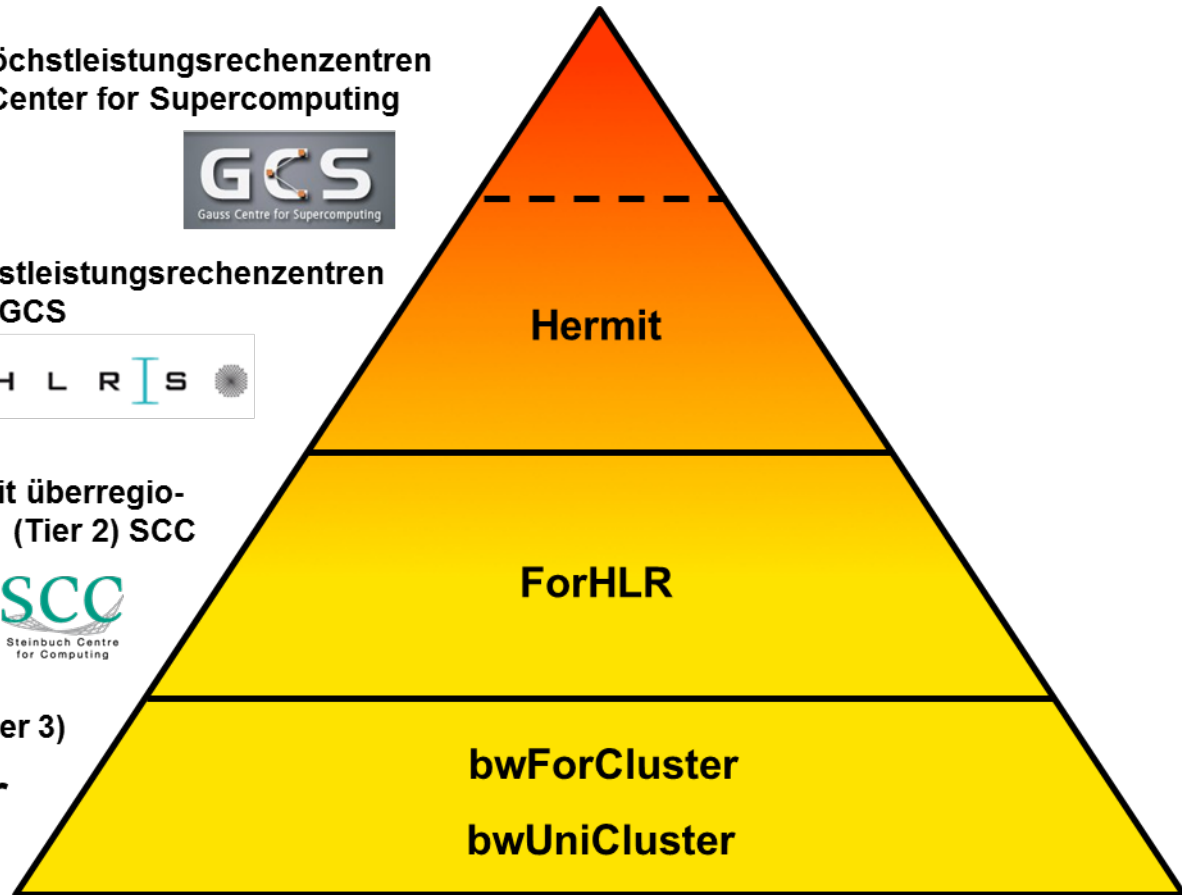


HPC-Zentren mit überregionalen Aufgaben
(Tier 2) SCC



HPC Cluster (Tier 3)

bwCluster



bwHPC: Tier 3 (2013-2018)

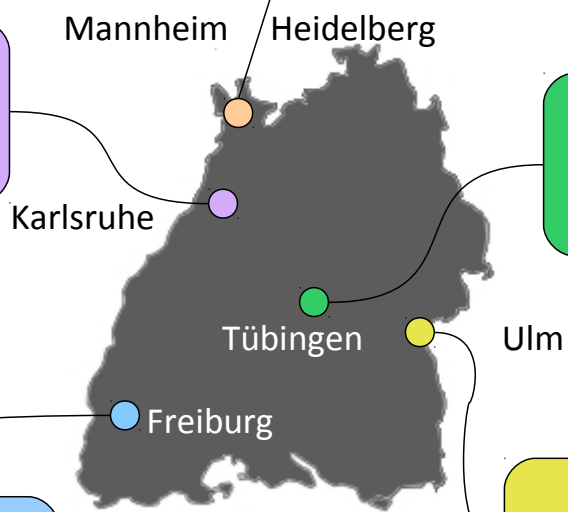
MA/HD:
bwForCluster MLS&WISO

KA: bwUniCluster

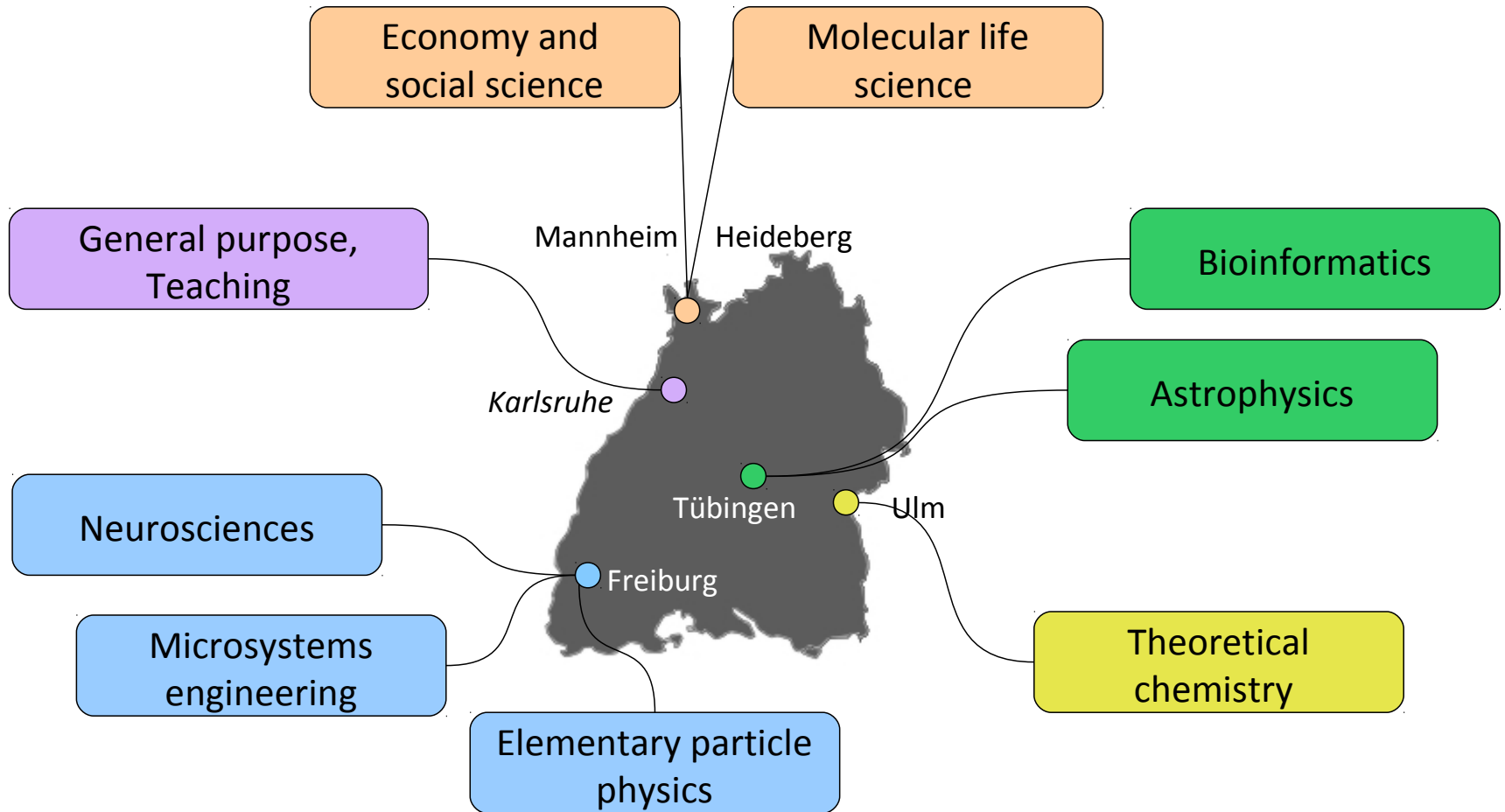
TU:
bwForCluster BinAC

FR:
bwForCluster NME

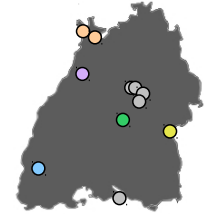
UL:
bwForCluster TheoChem



bwHPC - covered research areas



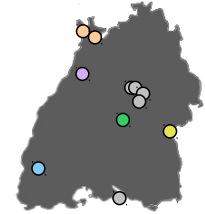
Federated HPC@Tier3 (1)



■ bwUniCluster:

- Uni = „universal“ or „University“
- Financed by Baden-Württemberg's ministry of science, research and arts and the shareholders:
 - Freiburg, Tübingen, KIT, Heidelberg, Ulm, Hohenheim, Konstanz, Mannheim, Stuttgart
- Usage:
 - Free of charge
 - General purpose, teaching & education
 - Technical computing (sequential & weak parallel) & parallel computing
- Access / limitations:
 - For all members of shareholder's university
 - Quota and computation share based on university's share

Federated HPC@Tier3 (2)



■ bwForCluster:

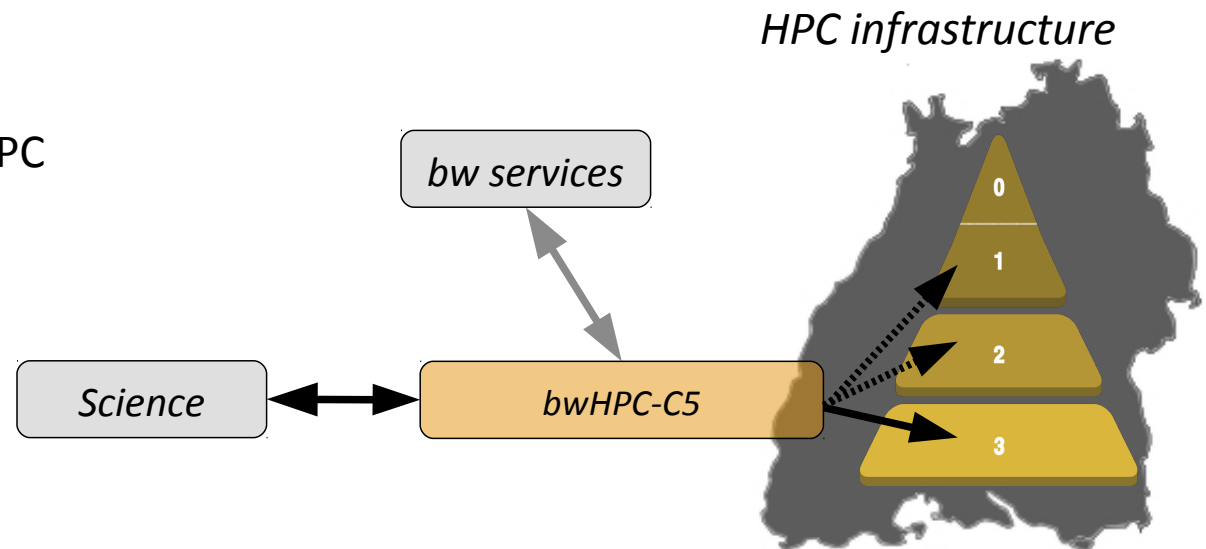
- For = „Forschung“ (research)
- Financed by German Research Society (DFG) and Baden-Württemberg's ministry of science, research and arts

- Access:
 - All university members in Baden-Württemberg
 - For science communities according to DFG proposal

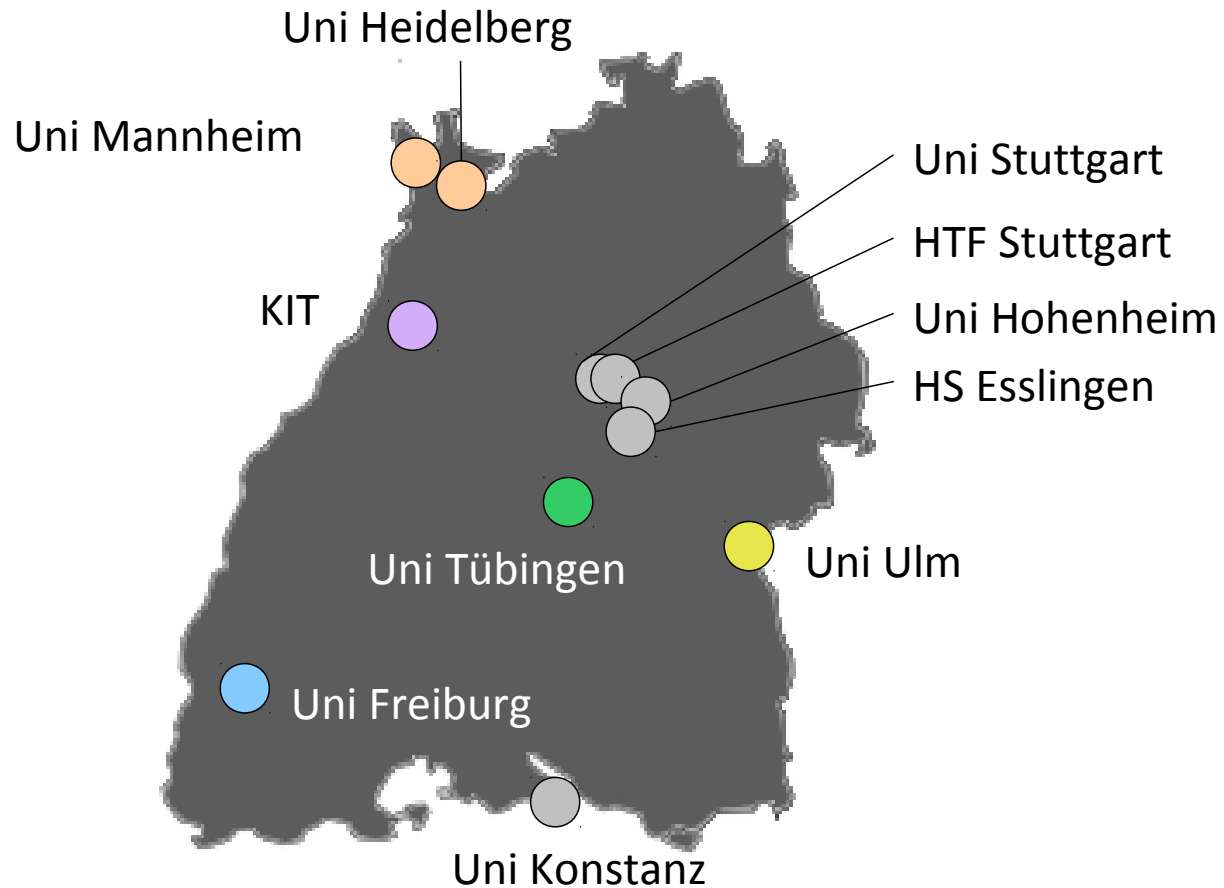
- Usage, limitations:
 - Free of charge
 - Access only to bwForCluster matching users field of research
 - Access requires approval of compute proposal

What is bwHPC-C5?

- C5 = Coordinated compute cluster competence centers
- Federated user support and IT services activities for bwHPC
- For User:
 - Send your support requests to competence centers (CC)
 - CC are not local, but distributed over whole BW
 - CC are community specific
- For BW:
 - Bridging Science & HPC
 - Bridging HPC tiers
 - Embedding services



bwHPC-C5: Location of project partners



bwHPC-C5: Federated science support

- HPC competence centers
 - Formation of a HPC expert pool (related to field of research and knowledge in parallel software development)
 - Coordination of tiger team activities (high level support teams)
 - Buildup of a best practice repository
- Coordination of teaching activities
 - Evaluation of courses
 - Generate offline and online material (eLearning, MOOC)
- Cluster Innovations
 - New Technology: Accelerators etc.
 - HPC virtualization, Compute cloud
 - Innovative cluster access, pre- and post-processing tools

bwHPC-C5: What kind of support?

- Information seminars, hands-on, HPC specific workshops
- Documentation + best practices repository www.bwhpc-c5.de/wiki
- Providing/maintaining/developing:
 - simplified access to all bwHPC resources
 - software portfolio
 - cluster independent & unified user environment
 - tools for data management
 - trouble ticket system
 - cluster information system
- Migration support:
 - code adaptation, e.g. MPI or OpenMP parallelisation
 - code porting (from desktop or old HPC clusters)
 - to tier 2 and 1

Status bwHPC (and bwGRiD)

■ bwHPC

■ BwCluster (Tier 3)

- bwUniCluster: available since Q1/2014
- bwForCluster TheoChem and MLS&WISO: in Q4/2014 bzw. Q2/2015
- bwForCluster BinAC and MNE: in 2015/2016

■ ForHLR (Tier 2): open for project proposals

■ bwFileStorage: open since 12/2013

■ bwGRiD

■ Cluster:

- Stuttgart, Karlsruhe and Ulm already offline
- Freiburg will close in December 2014
- Heidelberg/Mannheim will close 2015 (running without support)
- Tübingen and Esslingen will close 2015 or later

■ Storage: closed in 12/2013