# Financial models for the maintenance und use of the EUROBALL resources in physics campaigns

**Cost:**

- Operation of the home base: $LN_2$ , maintenance of test equipment, consumables for service of detectors and electronics
- Transport of equipment, transport insurance
- Running cost of the campaigns
- Repairs of detectors and electronics
- Replacement of detectors and electronics for the case that repairs are impossible

**How do we cover the cost so far ?**

- Operation of the home base (IReS for Clover detectors) paid partly from EUROBALL running cost,
  GSI (Cluster detectors), GANIL (neutron detectors) and Liverpool (inner BGO ball) ?
- Each campaign signs a MoU by which the collaboration is obliged to cover all cost from transport to repairs

## Funding solutions for the ongoing campaigns:

- RISING collects running cost from the partners of the collaboration
- JuroGam asks for financial contribution to the experiments
- CLARA is financed by LNL

## Why do we need a discussion ?

- The EUROBALL running cost for the operation of home bases are limited
- The lifetime of the EUROBALL VXI electronics is limited due to missing componentsfor repairs. Especially the Cluster electronics is in a bad shape; RISING replaced the VXI electronics by digital XIA electronics
- The cost for detector repairs and replacement will probably increase with time

# Financial models (examples for discussion)

## Model 1:

- When the EUROBALL running cost are used up the home bases will be financed from a rental fee for the equipment
- The cost of transport, running cost, repairs and replacement of detectors are covered by the campaign
- Electronics which cannot be repaired will not be replaced, i.e. in near future the resources will mainly consist of detectors. Each campaign will use it's own electronics

## Model 2:

- A higher rental fee will be applied in order to cover cost for replacement of detectors and/or electronics besides the operation of the home bases
- Cost for transport, running cost and repairs are financed by the campaigns

## Model 3:

- A small rental fee for the operation of the home bases
- Transport, running cost and repairs up to a reasonable effort are financed by the campaigns
- No replacement of detectors and electronics, i.e. campaigns will use own electronics, the number of detectors will decrease with time while other resouces like AGATA are growing

## Model 4:

- Create a new European network for nuclear structure research with γ-ray spectroscopy funded by the EC
- All projects like EUROBALL resouces, UK/France loan pool, EXOGAM, MINIBALL and (AGATA ?) will collaborate under this European roof

# Summary of the discussion of Monday afternoon with OC member and representatives of the campaigns

1. The EUROBALL resources consisting of 15 Cluster detectors (150 kg of Ge), 26 Clover detectors, 30 Phase I detectors, BGO shields, inner BGO ball and the electronics are a valuable and important basis of γ-spectroscopy in Europe at least for 6-8 more years. Therefore, the community will make any reasonable effort to maintain the resources in good condition and to achieve an optimal scientific benefit.

2. Cost of operation:
   -- The cost in the home bases of the detectors – GSI for Cluster detectors, IReS for Clover and Phase I detectors, GANIL for the neutron detectors and Liverpool for the inner BGO ball – are predominantly covered by the host labs. Smaller cost can be paid for some more years from EUROBALL running cost still available. Therefore, a rental fee is not needed.

-- **Transportation and running cost are financed by the institutions collaborating in a campaign.In addition, the collaboration will make all reasonable effort to organize or finance the repair of detectors.**
-- **Detectors which cannot be repaired at reasonable cost will not be replaced. So far, the loss rate of detectors is very low so that we can hope to recover the loss of detectors from the available spares for the time under consideration.**
-- **VXI electronics that cannot be repaired will not be replaced, i.e. in near future the EUROBALL resources will mainly consist of detectors.**
-- The question wether new electronics acquired by a collaboration for a longer campaign can be made available to further campaigns with the detectors needs a separate discussion.

3. **The rules given above are part of the MoU signed for each camapaign by a representative of the collaboration, a representative of the host lab and the chairperson of the OC.**