

## MAMBO

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### 1 Introduction

MAMBO groups together three complementary INFN activities in Germany: the experimental activity with the MAMI-C microtron in Mainz, the development of MRPC counters and the preliminary measurements towards a full proposal to measure the electric dipole moments (EDM) of proton and deuteron, and the new BGO-OD experiment at Bonn-ELSA. LNF are involved in the last two activities.

### 2 BGO-OD experiment

The BGO-OD experiment is performed in collaboration between INFN sections of Roma2, LNF, Messina, Pavia, ISS-Roma1 and Torino, the University of Bonn, Physikalisches Institut, ELSA department, the University of Bonn, Helmholtz Institut für Strahlen- und Kernphysik, the University of Edinburgh, the National Science Center Kharkov Institute of Physics and Technology, the University of Moscow, Russia, the Petersburg Nuclear Physics Institute (PNPI), Gatchina and the University of Basel. More than 70 physicists participate to this experimental program foreseen to last until 2017 with possible extension.

The INFN contribution consist in the *Rugby Ball* calorimeter and associated detectors previously used at GRAAL, the target system, the cylindrical tracking chambers and the MRPC detector.

### 3 Activity in 2012

During the year 2012 the installation of the detector in the S-Beamline at ELSA was continued and the debugging of the experiment was started. The *Rugby Ball* calorimeter was completely installed with its new electronic based on S-ADC's that will allow to obtain time information with 3 ns resolution. Also the Barrel was installed and tested. Small maintenance issues were found and fixed. Extra shielding to the residual magnetic field of the dipole is needed for the forward and upper part of the calorimeter. This issue is under studies through dedicated simulations. All the forward tracking detectors were installed and tested. No damages were detected as a consequence of the fire in June 2011, apart for some bars of the T.O.F. wall which need to be replaced. In Fig. 1 a schematic view of the complete apparatus is displayed together with a photograph of the progress in the setup installation at the end of 2012.

### 4 Planned activity in 2013

The activity in 2013 will be mainly focused on the completion of the experimental apparatus. The full tagging system is expected to be ready in summer. The MRPC and the MPWC chambers under the INFN (Roma2 and Pavia) responsibility should be installed before the end of the year. The TOF wall (under the responsibility of Bonn PI) should also be completed this year. The first data taking is expected to start in november 2013.

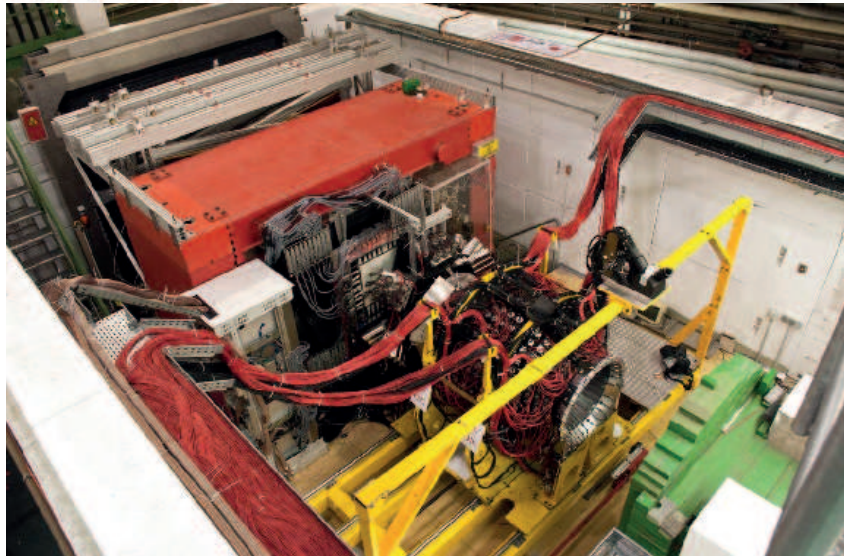
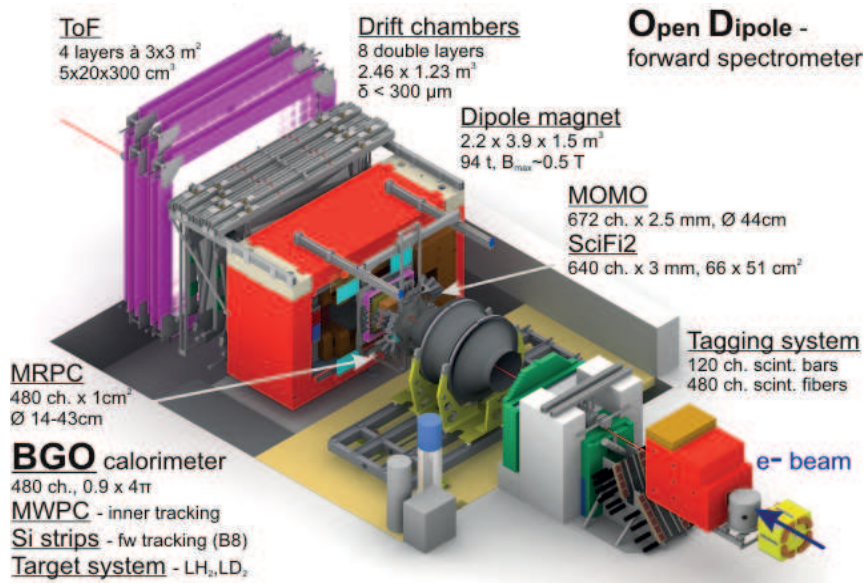


Figure 1: *Top: drawing of the full BGO-OD setup; bottom: the BGO-OD setup in october 2012*