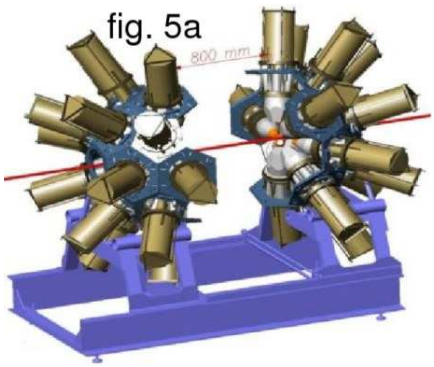
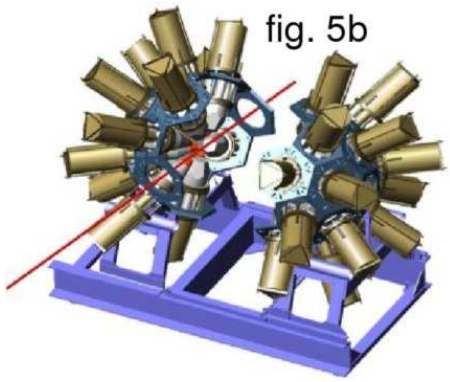
position and efficiency decreases (Ω_{Ge} =8.2% to Ω_{Ge} =6.8%$ however, access to target chamber seems to be easier. Decision has not been made yet and we would be grateful for advises and opinions about advantages and disadvantages of both solutions.





At the moment cyclotron at Warsaw University Heavy Ion Laboratory provides following ion beams: ^{10}B, ^{11}B, ^{12}C, ^{14}N, ^{16}O, ^{19}F, ^{20}Ne, ^{22}Ne, ^{32}S, ^{40}Ar at energies up to 10 AMeV. Our dream is to get new ion source to broaden our offer up to ^{120}Xe.

In June 2007 we would like to start preparation of technical documentation, parts machining and assembly of supporting structure. It depends on funds that we applied for to Ministry of Science and Higher Education. Preparation of technical documentation, parts machining and assembly should last less than one year. If our grant proposal for building supporting structure is accepted, funding should be available in autumn 2007. First measurements would be possible using HPGe detectors and DAQ system from OSIRIS System. Simultaneously, we want to apply for grant for new electronics. As natural born optimists we believe that we will obtain this grant too, but not sooner than in June 2008. We believe that in mid 2009 fully operational array would be ready.

12. Project ICARE at HIL

E.Piasecki[1], M.Antczak[1], J.Devine[2], W.Gawlikowicz[1], A.Jakubowski[1], P.Jasiński[1], M.Kisieliński[1], M.Kowalczyk[1], E.Kulczycka[1], L.Pieńkowski[1], A. Pietrzak[1], V.Rauch, J.Rehberger, and M.Rosseau for ICARE@HIL[1] collaboration

1) *Heavy Ion Laboratory, Warsaw University, Warsaw, Poland*
2) IPHC, Strasbourg, France

ICARE is the charged particles detector system used for their identification and energy measurements. Built in the IReS (Strasbourg) is presently under preparation to the first experiment at HIL by the physicist teams from Strasbourg, Cracow, Kiev and Warsaw. The ICARE system consists of the 1m diameter reaction chamber with up to 48 E-ΔE gas and semiconductor telescopes, supplied with the electronics and data acquisitions systems (see Fig.1).

[1] *ICARE collaboration involves: Heavy Ion Laboratory, Warsaw University; Institute of Experimental Physics, Warsaw University, Poland; IPHC, Strasbourg, France; The Andrzej Soltan Instytut Problemow Jadrowych, Swierk, Poland, The Henryk Niewodniczański Institute of Nuclear Physics, PAN, Kraków, Poland; Institute for Nuclear Research, Kiev, Ukraine.*

Fig.1 External view of the ICARE reaction chamber with vacuum and gas system.

The detectors can be mounted in any configuration preferred by users, using internal mounts. The self-supporting target holder allows to use up to 6 different targets. It can be remotely operated without necessity of opening the reaction chamber. The detector system layout is presented in Fig.2.

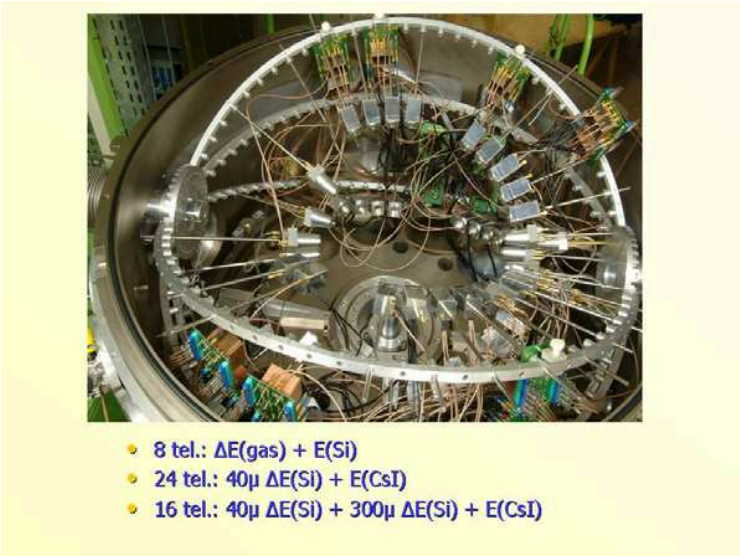


Fig. 2. Telescopes mounted inside the ICARE reaction chamber

An example of particle identification obtained in one of the telescopes during the recent in-beam test is shown in Fig. 3.

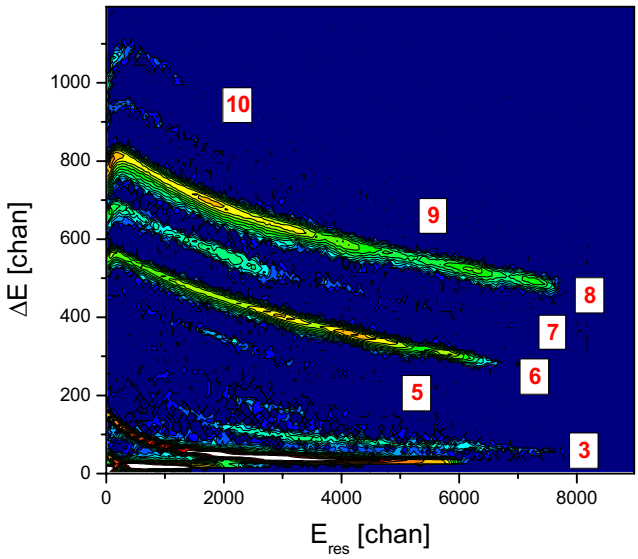


Fig.3 Reaction products observed in the $^{16}O + ^{12}C$ at 6 MeV/u in one of the telescopes.

Presently we are working on improving some ICARE characteristics and we plan to expand its possibilities by adding to the system the Time-of-Flight possibilities.

In the near future several experiments are planned to be performed using the ICARE system:

• Study of properties of isotopes far from stability line produced in heavy-ion reactions[1]
• Studies of fusion barrier height distributions using the quasi-elastic scattering method[2]
• Study of nucleus deformation using light-charged particles emission spectra [3]

References:

[1] A.A.Rudchik et al., Phys.Rev. C72(2005)034608
[2] E.Piasecki et al, Phys.Lett. B615(2005)55
[3] C.Beck et al., Int. J. of Mod. Phys. E13(2004)9.

13. Organosilane as a binding site for instant fluorination of peptides for PET radiopharmaceuticals

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Positron labelled biomolecules such as peptides and proteins have the ability to quantitatively detect many kinds of disease processes in human body. As an example one can use