

Entry: **CU28** Date: .....  
 Machine Name: CV 28  
 Cyclotron Model: TCC CV 28  
 Institution: Institut für Medizinische Strahlenphysik  
 Address: Hufelandstraße 55, D-45122 Essen  
 Tel: (+49) 201 723 4170  
 Fax: (+49) 201 723 5965 Web: .....  
 E-mail: christian.streffer@uni-essen.de  
 In Charge: Prof. Dr. Dr. h.c. C. Streffer

**HISTORY**

Installation: 1974 First Beam: 1975 (Essen)  
 Design/Construction by: TCC, Berkeley  
 Funded by: Land Nordrhein-Westfalen (University)

**USES**

Radiation therapy	20 %
Radiobiological research	10 %
Isotope production	70 %
.....	%
.....	%
Total time: 1500 h/year	

**CHARACTERISTIC BEAMS**

Ions/energy/current:

protons	24 MeV	30 µA
deutrons	14 MeV	80 µA
Helium-3**	36 MeV	30 µA

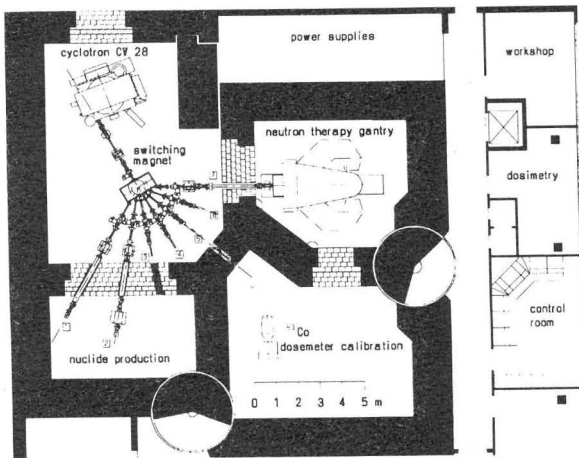
**EXPERIMENTAL FACILITIES**

Neutron therapy gantry  
 PET nuclide production targets  
 Radiobiological working places for irradiation

**REFERENCES**

Rassow, J. et al. : CIRCE-Cyclotron Isocentric Neutron Therapy Facility. In: Proceeding 3rd Symposium on Neutron Dosimetry. EURATOM EUR 5848/DE/EN/FR 1978

**PLAN VIEW OF FACILITY**



**COMMENTS**

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 .....  
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Entry: **CU29** Date: June 3, 1998  
 Machine Name: DKFZ Negative Ion Cyclotron  
 Cyclotron Model: MC 32 NI  
 Institution: German Cancer Research Center (DKFZ)  
 Address: Im Neuenheimer Feld 280, D - 69120 Heidelberg  
 Tel: +6221 422 681 / 682  
 Fax: +6221 422 666 Web: http://www.dkfz-heidelberg.de  
 E-mail: g.wolber@dkfz-heidelberg.de  
 In Charge: Gerd Wolber, Ph. D.

**HISTORY**

Installation: April 1991 First Beam: June 1991  
 Design/Construction by: Scanditronix AB, Uppsala, Sweden  
 Funded by: Fed. Government (90%), State Governm. (10%)

**USES**

Radionuclide production / radiochemistry	80 %
Fast Neutron production / radiobiology, dosimetry	15 %
Beam shaping, alignment	5 %
Total time: 2600 (beam on target: 1300) h/year	

**CHARACTERISTIC BEAMS**

Ions/energy/current:  
 p/ 16 - 32 MeV / 100 µA ext.  
 d/ 9 - 16 MeV / 100 µA ext.

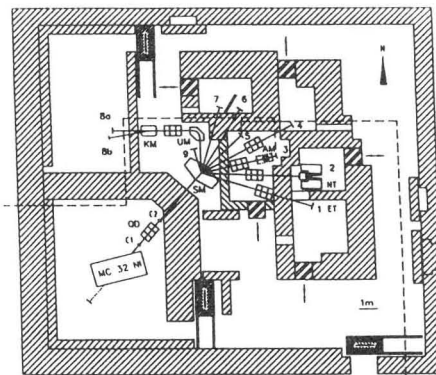
**EXPERIMENTAL FACILITIES**

6 beam lines with a total of 15 target ports for radionuclide production  
 1 beam line with 2 Be targets for fast neutron production  
 1 beam line with 2 target ports, one for activation / wear measurements (used by FZ Karlsruhe)  
 1 vertical beam for radionuclide prod. (operational in 1999)

**REFERENCES**

G. Wolber et al., Phys. Med. Biol. 42 (1997) 725 - 733

**PLAN VIEW OF FACILITY**



The Heidelberg Cyclotron Laboratory. Overall dimensions: 18 x 20 x 8 m<sup>3</sup>. Most beam tubes carry target changing devices. Dashed lines from beam ports # 3 and # 5 indicate pipelines for <sup>13</sup>O and <sup>11</sup>C, respectively, to the hot cells in the radiopharmaceutical laboratory.

**COMMENTS**

Delivery of radionuclides also to regional clinics  
 Limited capacity available to extramural users