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AUTHORS: Eckardt, A., Götr, G., Greiner, E., Kriester, A.,
Mittenbacher, J., Prager, R.

TITLE:

PERIODICAL: 1M.V. cascade-type generator for the acceleration of
protons and deuterons.

PERIODICAL: KERNENERGIE (Germany) 1962, No. 2

TEXT: The main components of the unit are: 1. Three stage
cascade H.T. generator; 2. Accelerator tube and voltage divider;
3. H.F. ion source; 4. High vacuum and target systems; 5. Control, -
measuring - and regulation devices. The generator employs the
Cockcroft - Walton circuit, with a 560 Hz H.T. transformer (500V/175kV,
15 kVA) and comutator. The maximum voltage at zero load was limited
because of corona discharges to 1M.V. At 100kV and 1mA current a
voltage drop of 17,2kV and a ripple of 5kV/mA were measured. The
ripple at zero load in less than 1%. It is shown theoretically that
for the given H.T. transformer, condensor and load the practical
optimum number of stages is three. The accelerator tube has six seg-
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1M.V. cascade-type generator....

ments, connected to the H.T. generator by means of voltage dividers.
The ion optical system consists of six electrostatic lenses, the
first lens being the last electrode of the prefocussing system and
the first electrode of the accelerator tube. By varying the poten-
tial of the former between 0 to 20kV, optimal focusing of the ion
beam for voltages from 100 to 1000 kV is obtained. The H.F. ion
source employs a transmitter supplying 70W at 80 MHz*. The ion yield
obtained is about 20 mA/W. A prefocussing system is required as
the ion beam aperture at the source is $\leq 6^\circ$. A 1.5kV 50Hz* generator
for supply of accessories at high potential is built into the H.T.
electrode. The accelerator was tested at 850kV, with an ion current
of 400mA at the target, the pressure in the tube being less than
 10^{-5} Torr. For calibration some nuclear ($p\gamma$ /resonance reactions
were used). There are 10 figures.

Card 2/3 * GFS

ASSOCIATION: Technisch-Physicalishes Institut der Friedrich-Schiller-
Universität (Technico-Physical Institute of the
Friedrich-Schiller-University, Jena)

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