to produce ion densities of high values By using voltages of the order of $10^4$ and discharge currents between 1 and 50mA, nuclear and chemical reactions can be induced on targets introduced into the centre part of the beam The efficiency of ion production in the disk generator, defined as the ratio of the ion current in the reaction space to the primary current strength in the discharge space reached the value of 10 per cent under optimum conditions (*German*)

H Klumb, *Vakuum Technik* **13** (1), Feb 1964 3–6

## 33. General Physics and Electronics

33 41 30

**Electron microscope measurements on evaporated barium titanate films.** See Abstr No 425

33 30

**Measurement by means of Widmannstatten pattern of the thickness of thin metallic films for examination in the electron microscope.** See Abstr No 421

33 16

**Speed of sorption of nitrogen activated by electron impact.** See Abstr No 372

## 34. High Altitude and Space Technology

34 32 16

**Adsorption and desorption phenomena and their role in particle accelerators and space simulators.** See Abstr No 369

## 36. Drying, Degassing and Concentration

36 23 43

**435. Degassing characteristics of some "O" ring materials.** (*Great Britain*)

The degassing rates of nitrile and viton A O rings were measured both at room temperature and after having been baked at various temperatures between 100 and 200 C (Viton) and 50–100 (Nitrile) Degassing rates are more sensitive means of comparing elastomers than pump-down or ultimate tests in an assembled system, since any difference may then be obscured by additional degassing from all the solid surfaces In the unbaked condition, Viton rings showed about half the degassing rate of the nitrile variety After baking for 4 hours at 100 C, the difference became much more marked, the rate of the Viton being only 1 50 that of the Nitrile and approaching degassing rate for unbaked metal samples Heating the Viton to 200 C, however, increases the degassing rate and there is evidence of contamination of the test chamber by volatile products Similar chemical changes take place with Nitrile at temperature above 100 C It should be emphasized that the results quoted apply to materials of one particular specification only and should not be applied without reservation to samples from the manufacturers (*Great Britain*)

W J S

D J Crawley and L de Csernatorny, *Vacuum* **14** (1), Jan 1964, 7–9

36 47

**436. Inclusion of the rate of manifold outgassing in the vacuum pumping equation.** (*Great Britain*)

Details are presented of a calculation aimed at an optimization of the dimensions of a high vacuum pumping manifold Not only the usual pumping speeds but also the effects of manifold outgassing are included in the calculation Although the details shown are applicable only to the manifold under consideration, the techniques demonstrated can be used in the design of any sort of vacuum manifold in which the outgassing of the manifold plays a significant part in the pump-down cycle of the apparatus (*U S A*)

(Author)

L P Levine and R G Johnson, *Vacuum* **14** (2) Feb 1964 59–61

## 37. Metallurgy and Inorganic Chemistry, Analytical Chemistry

37

**437. High temperature vacuum furnace with metallic sheet resistance elements.** (*U S A*)

J F Bacon *et al* *Rev Sci Instrum* **34** (11) Nov 1963 1200–1201

37

**438 Nitriding, sintering and brazing by glow discharge.** (*U S A*)

C K Jones and S W Martin *Metal Progress*, **85** (2) Feb 1964, 94–98

## 38. Distillation, Organic Chemistry, Isotopic Gas Analysis

38 22

**439. The mass spectrometric study of the reaction of methyl radicals with oxygen.** (*Great Britain*)

M Barber *et al* *Proc Roy Soc*, **274** (1358), 306–318

38 22

**440. A mass spectrometer for studying chemical reactions** (*Great Britain*)

M Barber *et al*, *Proc Roy Soc*, **274** (1358) 258–292

## 39. Miscellaneous Applications

39 17 16

**Contribution to the study of surfaces by physical adsorption.** See Abstr No 367

39 18

**441. Ion etching—an efficacious method for the elimination of foreign layers in ultra vacuum.** (*German*)

The ion etching is an important method successfully applied with electron diffraction for eliminating foreign coats on surfaces It is shown that by means of ion etching in ultra vacuum results are possible which can usually be obtained in ultra-high vacuum only (*Switzerland*) (Authors)

M Gribi F Jobin and L Wegmann *2nd European Vac Symp*, 5–7 June, 1963, 291–294, Rudolph A Lang Verlag, Esch (Taunus)