Lessons Learned from Gustav-Adolf Voss
–
A (very) Personal Perspective

N.Holtkamp

Principal Deputy Director-General of the ITER Organization

COSY at the Berliner Elektronenspeicherring Gesellschaft für Synchrotronstrahlung (BESSY)

COSY - A COMPACT ELECTRON STORAGE RING FOR SYNCHROTRON RADIATION

E. Weihreter, K. Anders, K. Bürkmann, K. Derikum, G.v. Egan-Krieger, M.v. Hartrott, N. Holtkamp, W.-D. Klotz*, H. Lehr, R. Maier+, M. Martin, G. Mülhaupt*, A. Schiele, L. Schulz, T. Westphal

Berliner Elektronenspeicherring-Gesellschaft für Synchrotronstrahlung mbH
Lentzeallee 100, D-1000 Berlin 33
* Now at ESRF, Grenoble
+ Now at KFA Jülich

Abstract: The general layout of COSY, a compact superconducting synchrotron radiation source dedicated to x-ray lithography is presented together with a discussion of the most important design considerations. Prior to the installation of the SC-dipole magnets the injection process has been studied. First experimental results are reported.

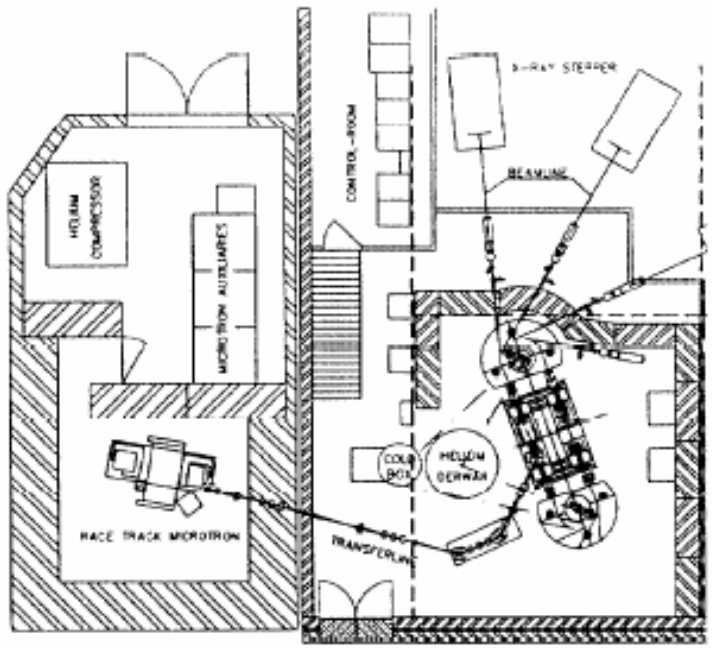
Introduction

The increasing importance of synchrotron radiation for industrial applications calls for the development of small and inexpensive sources. There are many approaches for the design of compact synchrotron radiation storage rings, which is also reflected by the increasing number of projects dedicated for x-ray lithography scattered all over the world [1].

In a feasibility study we have investigated four alternative solutions [2]: a conventional ring with normal conducting (nc) magnets, a hybrid version with superconducting wigglers in a nc-ring, a weak focussing super conducting (sc) machine with circular symmetry and a race track version with two sc 180° dipoles, the final COSY design.

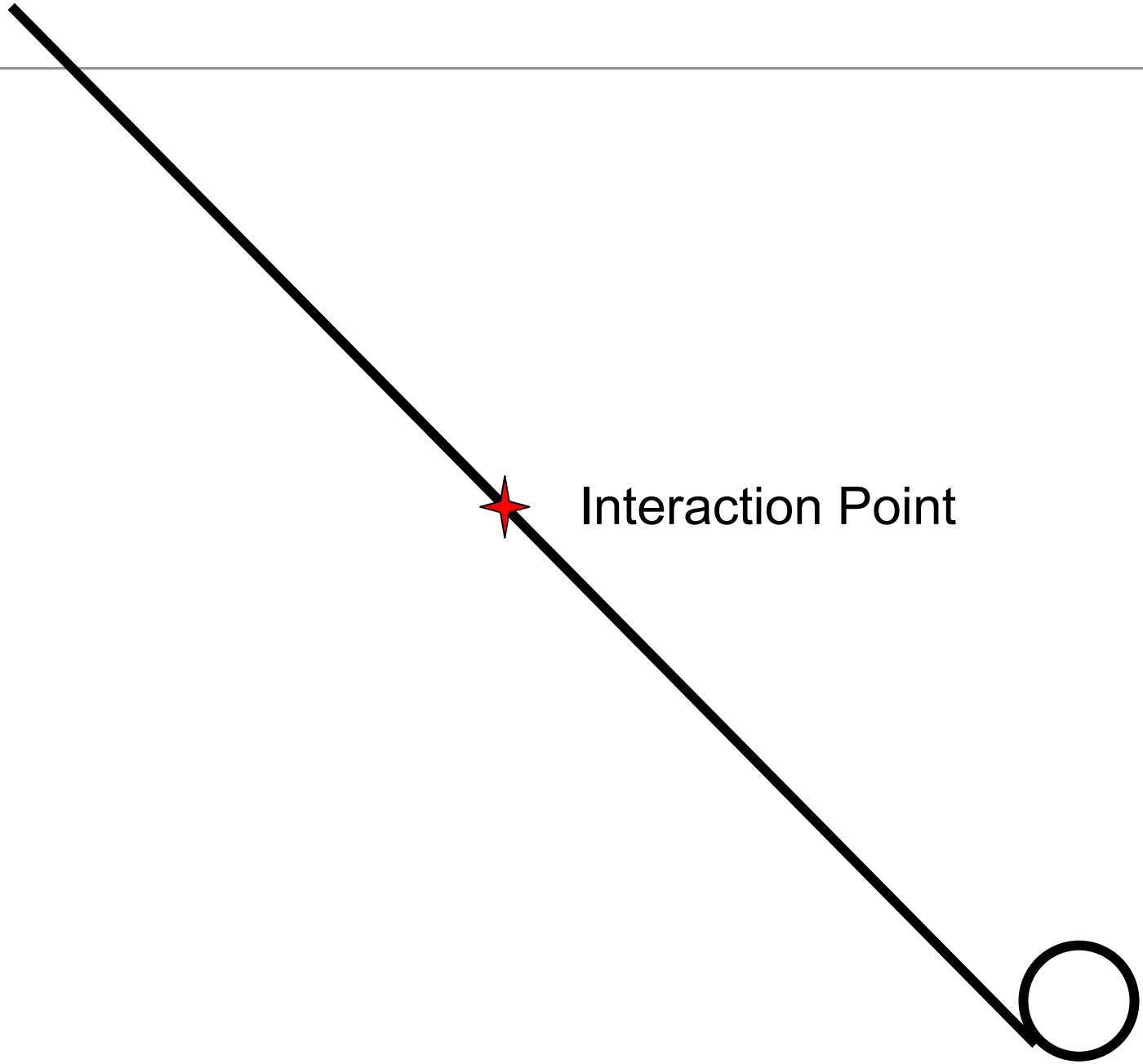
Beside the advantage of a more compact set-up compared to the nc-machines, the decision to use

Fig. 1: General layout of the Cosy-system



tracking calculations. Only in the calculations of

WAKEFIELD at DESY 1988


Interaction Point

“Crossing Jordan…”, Anno 2000

US Patent 5764722 – “Arrangement for producing a rotating x-ray beam in a computed tomography apparatus”, June 9, 1998

- “An arrangement for producing an x-ray beam in a computed tomography apparatus allows a scanning of the annular anode by the electron beam to ensue without any gap around the entire circumference of the anode. The electron beam is deflected by kick magnets from an injection circle onto a working circle and, proceeding from the working circle, onto the annular anode for causing an x-ray beam to be emitted from the anode as the point of incidence of the electron beam on the anode moves around the anode“

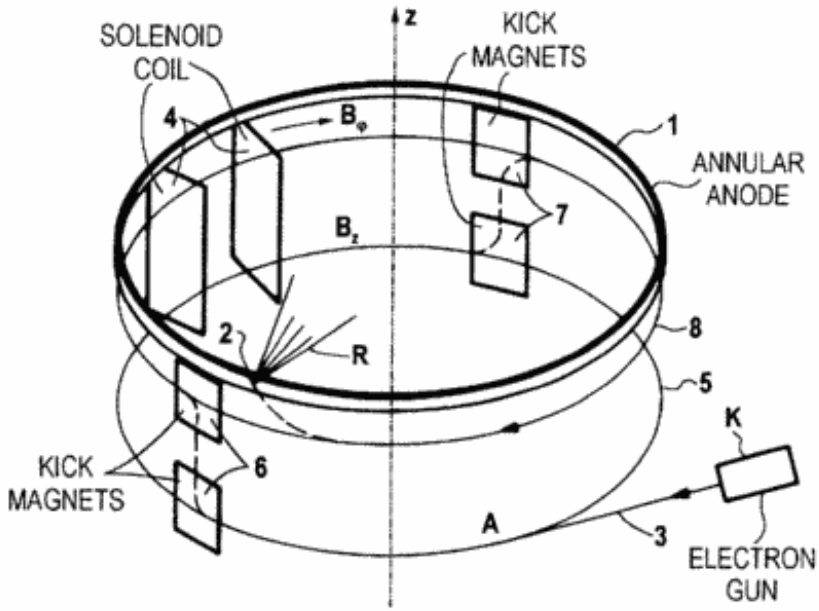


FIG 1


Hilfe,
wir werden
bestrahlt...
Strahlung aus berufenem Munde
verständlich erklärt
SELBSTVERLAG