

O P E N I N G   A D D R E S S E S

**G. zu Putlitz**

Ladies and Gentlemen,  
Dear Colleagues,

on behalf also of my co-chairman Norbert Angert I would like to welcome you at the Linear Accelerator Conference in Darmstadt.

I would like to welcome in particular all our colleagues from abroad. Among them are the members of the International Advisory Committee, who contributed so actively in the scientific outline of this meeting. Also, I would like to welcome Professor Paul Kienle, the Scientific Director of GSI, which serves as host institution for this meeting.

The Linear Accelerator Conference has a long tradition. It grew out of a meeting in 1961 at the Brookhaven National Laboratory. At that time meetings were intimate and small. Later this meeting has been organized at the Los Alamos Scientific Laboratory, at the Chalk River Nuclear Laboratory, and at the Fermi National Laboratory, just to mention a few. Actually, the host institutions of this meeting comprise a list of very fine laboratories which made significant contributions to the development of linear accelerators.

The development of linear accelerators is very much attached to names like Rolf Wideröe or Luis Alvarez, whose ideas have been realized nowadays in so many versions and modifications all over the world. More recently, long chains of single resonators coupled together have been used for linear acceleration and for the modification of the beam energy. This could be realized only because of the progress made in automatic computerized controls. The UNILAC at GSI, invented by Christoph Schmelzer, is a good example of a very big linear accelerator for heavy ion acceleration. Likewise, at the Max-Planck-Institut in Heidelberg or at the Argonne National Laboratory normal or superconducting

versions respectively of spiral resonators have gone into operation to boost the classical tandems.

Lately, Kapchinskys idea of a radiofrequency quadrupole accelerator have been revitalized. Through the work in Los Alamos and at many other laboratories his idea has been popularized now nearly to the extent of a mass movement. Again a very fast development of many competing laboratories promotes this technique. As you can see from the program RFQ's are one of the hot topics. For this reason we have chosen the symbol of the RFQ-structure developed at GSI for heavy ions as the trade mark for this Linac 84 Conference.

Initially linear accelerators were all the time developed and built for purposes of basic research. However, more and more applied and even industrial applications of linear accelerators are found. In addition, linear accelerator technology made its way to many areas. So, this field is still of growing importance and has a very high potential of innovation.

The science of accelerators is a practical one. To be a leader in this field one has to know the "tricks of the trade". This knowledge can be best mediated by the exchange of information from person to person. Contacts between scientists in this field are not only important, they are indispensable. For this reason we can identify accelerator conferences later on usually as milestones of certain developments.

When in 1981 in Santa Fe it was decided to have this Linear Accelerator Conference travel for the first time to a site outside of the American continent, we appreciated very much to have this meeting in Darmstadt, the site of the German Heavy Ion Laboratory. That this meeting has gone abroad underlines the general recognition of the true internationality of the field of linear accelerators and their technology.

I wish you all a successful and enjoyable meeting. The Linear Accelerator Conference 1984 is now opened.

**Paul Kienle**

It is a pleasure and an honour for me to welcome you on behalf of the GSI to this Conference.

I am very pleased to see that so many followed our call. We hope that you feel well in this adventurous and inspiring environment, but I should like to remind you kindly:

"Before take off, please fasten the seatbelts and read the safety instructions."

You may wonder, whether there are any further connections between Lufthansa's operation and our business.

I think there is, namely the pioneering spirit to discover new lands and the desire to stay always on the frontier.

In this context, I like to draw your attention to a pioneer of your field, who will join the conference tomorrow, **Professor Schmelzer**, who built with his crew the UNILAC, an unique heavy ion accelerator, the main tool of GSI, which enables us to discover exciting physics in the field of heavy ion research.

Examples of such work are the discovery of elements 107, 109 and 108 in one row and the recent finding of monoenergetic positron lines from U-heavy atom collisions.

Even a short look at your program makes clear that new pioneering techniques in the art of particle acceleration are under way, which will enable us to make use of it for new physics in the future.

I wish you an interesting time in discussion of your exciting field.