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TWO-CENTER EFFECTS IN ION-ATOM COLLISIONS: A Symposium in Honor of M. Eugene Rudd, Lincoln, NE May 1994 — Contents and Preface

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One of Professor Rudd's early laboratories (circa 1941).

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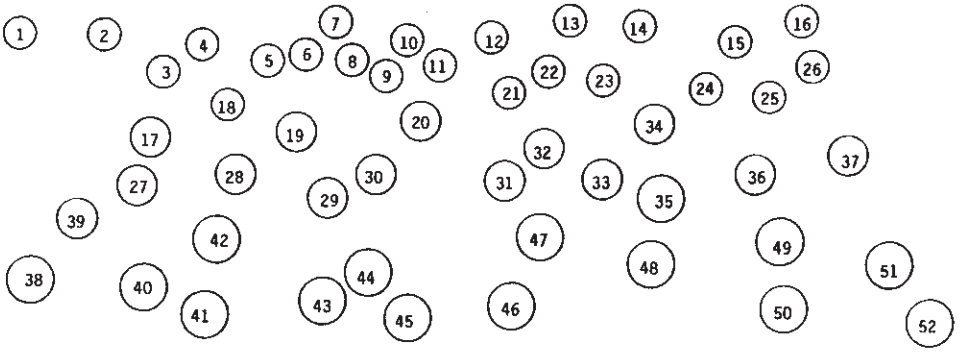
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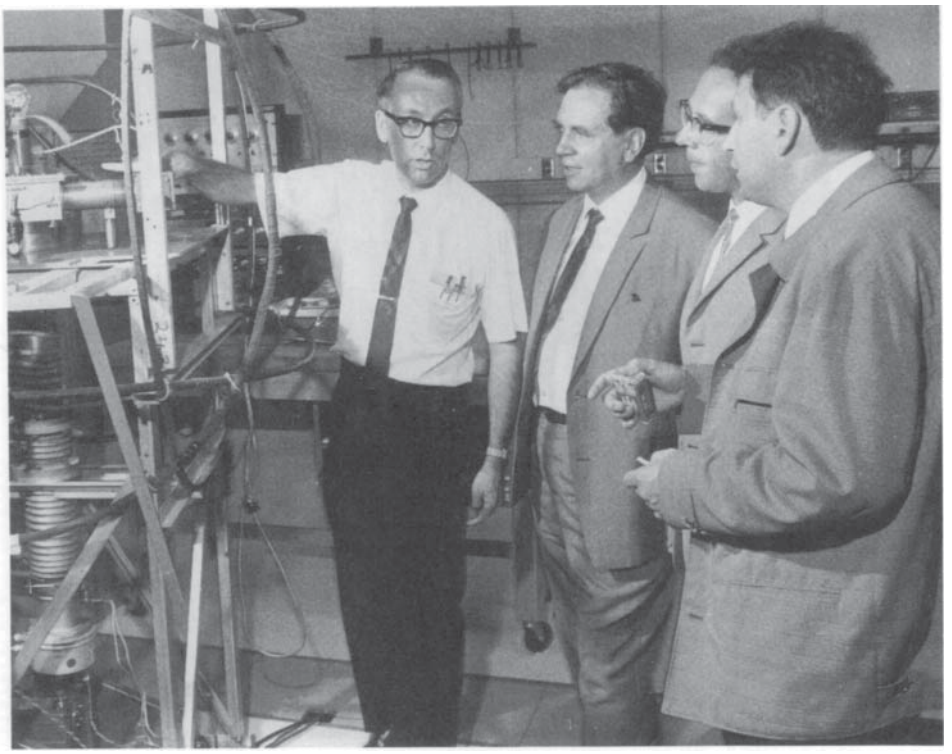

Visiting Soviet scientists viewing Nebraska apparatus in 1969. Left-to-right: Rudd, Yu.N.Demkov (Moscow),V.V.Afrosimov (Leningrad),S.V.Bobashev(Leningrad).

PREFACE

Following a distinguished career in atomic physics, sketched in the accompanying biography, M. Eugene Rudd retired from the faculty of the University of Nebraska in the spring of 1993. In order to celebrate his many research accomplishments, a two day scientific conference, held on 13–14 May 1994, was organized in Lincoln. It was felt that the special spirit that Rudd brought to the lab would be highlighted by a conference designed to analyze in detail a subject of current research in which he was a pioneer: two center-effects in ion-atom ionizing collisions.

Prior to 1980, primarily as a result of the experiments of Rudd and his co-workers, a standard view of ionizing collisions had developed. This view held that almost all the ionized electrons could be associated with either the ionized target or the receding projectile. The former, having mostly small momenta, were produced in "soft" collisions with the projectile, and emerged almost isotropically from the collision region. The remaining electrons had velocities similar to that of the projectile, and formed a "cusp" distribution about its velocity vector in the forward direction. Beginning in the mid-1980's however, it became increasingly clear that electronic trajectories that were manifestly determined by a combination of the action of the two Coulomb centers, both target and projectile acting together, might be observed. The topic of this meeting was to consider such effects in detail.

The speakers were chosen because of their expertise in this area, and included a number of Professor Rudd's students and immediate colleagues. Eugen Merzbacher delivered the banquet address on "The Crisis at the *Physical Review*." In addition to the four scientific sessions for invited speakers, a poster session was held with 17 contributions.

We intend that this *Festschrift* will serve as a useful summary of the current status of this field, and as a good starting point for researchers interested in studying this topic. We hope that it will also give the scientific community at large an indication of the influence of M. E. Rudd's career, and of the high esteem in which his colleagues hold both it and him.

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