reactor for everybody's garage". Should this be achievable, Penning traps will have bridged the giant gap between infinitely small densities (a single particle floating freely in empty [10^{-17} Torr] space) and the highest plasma densities obtainable in terrestial machines (10^6 times the Brillouin limit).

6. Summary and Conclusions

These few selected examples have shown how diverse the field of ion trapping has become in the few decades since the first trapping experiment. I have by far not covered all areas, and therefore have only shown a small portion of the tree. Additionally, an area which has been not at all the topic of this talk, or even the symposium, which certainly has been influenced by the ion trap work, is the development of traps for neutral particles. May be one could compare the atom trap field to a seedling which has sprung from the original tree, even though it has in the meantime by far out grown (at least in volume) the ion trap community. Common to both fields, and to all the individual experiments, is the relatively small size, both physically and fiscally, of these experiments, some of which are testing territory which has been the traditional playing ground for larger and larger high energy accelerators. The next generation accelerators are finding more and more fiscal constraints and the energy increase one can imagine at this time is very limited, and it is a valid argument to look for "garage type" (weren't they used to be called "table-top not too long ago?) experiments, which can shed light on questions far beyond the reach of accelerators. Excellent examples for these types are the g-2 measurements, which may hint to a sub-structure of the electron [45] or the measurement of the gravitational acceleration of the antiproton [46], probing physics at the Planck mass scale.