at that time. But unfortunately this sequence of experiments came to an abrupt end with Prof. Gräff's untimely death.

During the same time the group around Prof. Dehmelt had been busy developing their own unique technique, which eventually lead to a "Quantum Leap" forward in this field. The crucial novelty of their approach was a consequent pursuit of the original goal to achieve a "single isolated atomic system floating at rest in free space for unlimited periods" [2]. This work resulted in the famous "Mono-Electron Oscillator" [18] where a single 1-meV electron was suspended in a Penning trap. This system has also been named by H. G. Dehmelt as Geonium, a single electron bound to the Earth (via the trap potential), to stress the resemblance to an (ideal) atom with energy levels and transition between those levels.

The quintessence of the experiment is in two distinct advances. Firstly, being able to confine and monitor a single electron alleviates the need to prepare the sample in a specific state since the one electron always will be in a specific spin state. Secondly, by adding a very weak magnetic bottle to the highly homogeneous magnetic field a weak, spin dependent, restoring force is added to the electrical force in axial direction. This makes the axial harmonic frequency slightly dependent on the spin direction and allows to continuously monitor the spin state of the electron and therefore to observe spin flips continuously in time. When now an appropriate RF drive is applied and the frequency is stepped through the anomaly resonance the frequency of spin-flips observed will vary and a measurement of the anomaly transition is obtained. The result published in the first description of this method is $a_e = 0.001\ 159\ 652\ 410(200)$, in excellent agreement with the theoretical value of the time ($\Delta(a_{e(expt)} - a_{e(theory)} = (300 \pm 650) \times 10^{-12}$). How did one get to this level of accuracy? May be the best way to display the mixture of experimental skill, ingenuity, and persistence is to follow the g-factor measurement from that time on until the presence. After having achieved a seemingly unsurpassable accuracy through the use of the well compensated Penning trap [19], which allowed continuous interaction with a single electron, while at the same time not disturbing the measurement, the next generation experiments was made possible through the observation that the magnetic bottle, limiting the precision of the data, could be omitted and be replaced by the relativistic mass shift of the electron between two adjacent spin levels [20]. This finally appeared to be a fundamental limit in accuracy. But this would be a premature conclusion. After having experimented with the scheme of a variable magnetic bottle [21] a further push towards higher accuracy was attempted by H. G. Dehmelt's group after they observed that the broadening introduced by a magnetic bottle and by the relativistic mass shift have opposite signs: