

## The Nobel Prize in Physics 1989



Norman F. Ramsey  
Prize share: 1/2



Hans G. Dehmelt  
Prize share: 1/4



Wolfgang Paul  
Prize share: 1/4

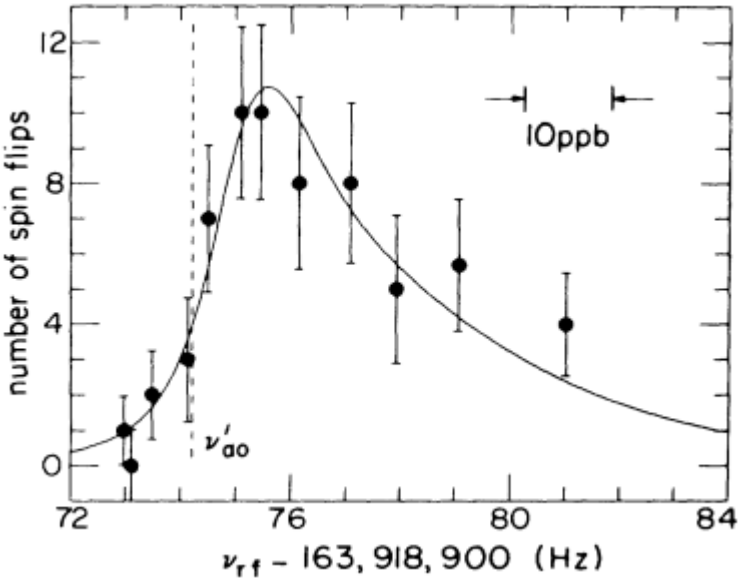
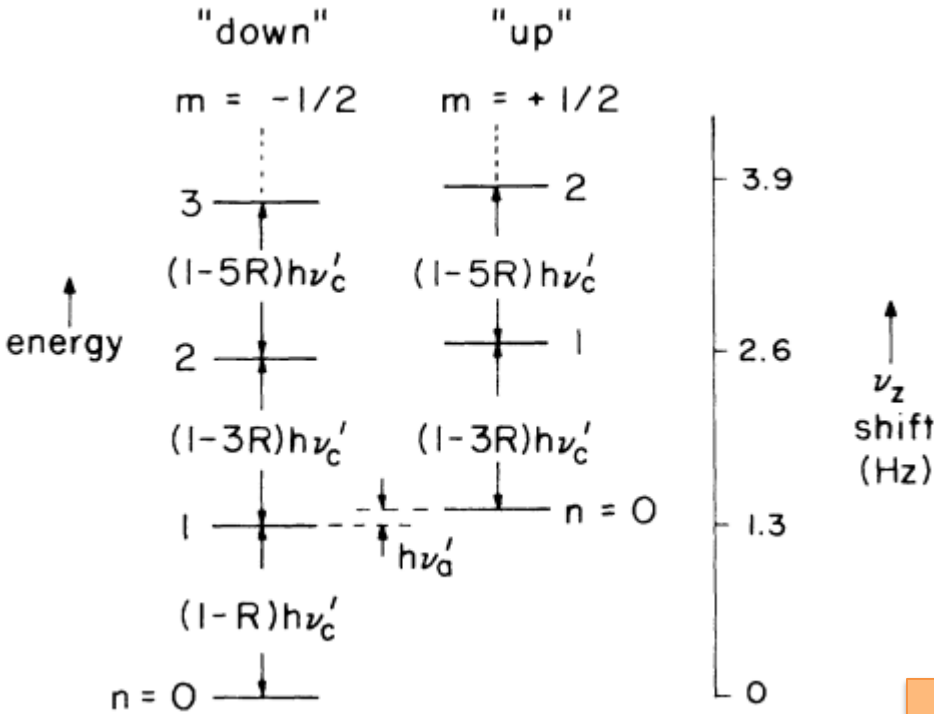
The Nobel Prize in Physics 1989 was divided, one half awarded to Norman F. Ramsey *"for the invention of the separated oscillatory fields method and its use in the hydrogen maser and other atomic clocks"*, the other half jointly to Hans G. Dehmelt and Wolfgang Paul *"for the development of the ion trap technique"*.

## New High-Precision Comparison of Electron and Positron $g$ Factors

Robert S. Van Dyck, Jr., Paul B. Schwinberg, and Hans G. Dehmelt

*Department of Physics, University of Washington, Seattle, Washington 98195*

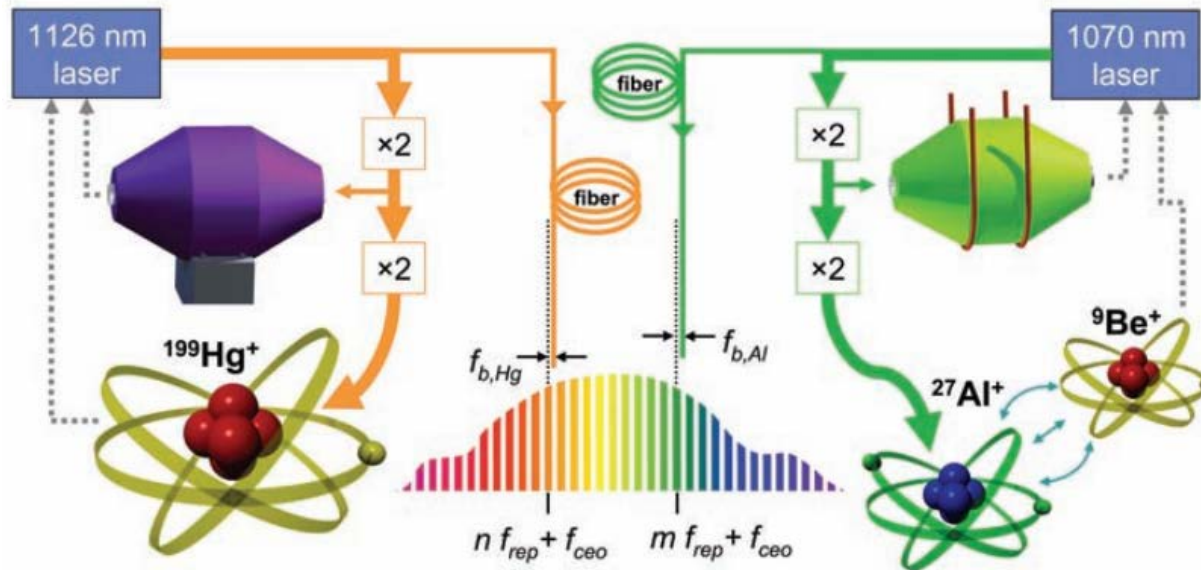
(Received 23 March 1987)



$$a(e^-) = 1159652188.4(4.3) \times 10^{-12},$$
$$g(e^-)/g(e^+) = 1 + (0.5 \pm 2.1) \times 10^{-12},$$

## Frequency Ratio of $\text{Al}^+$ and $\text{Hg}^+$ Single-Ion Optical Clocks; Metrology at the 17th Decimal Place

T. Rosenband,\* D. B. Hume, P. O. Schmidt,† C. W. Chou, A. Brusch, L. Lorini,‡ W. H. Oskay,§  
R. E. Drullinger, T. M. Fortier, J. E. Stalnaker,|| S. A. Diddams, W. C. Swann,  
N. R. Newbury, W. M. Itano, D. J. Wineland, J. C. Bergquist



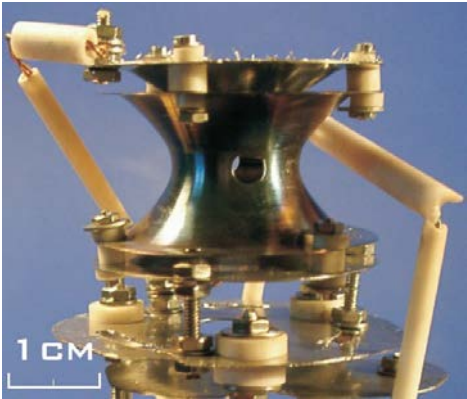
## **14-Qubit Entanglement: Creation and Coherence**

Thomas Monz,<sup>1</sup> Philipp Schindler,<sup>1</sup> Julio T. Barreiro,<sup>1</sup> Michael Chwalla,<sup>1</sup> Daniel Nigg,<sup>1</sup> William A. Coish,<sup>2,3</sup>  
Maximilian Harlander,<sup>1</sup> Wolfgang Hänsel,<sup>4</sup> Markus Hennrich,<sup>1,\*</sup> and Rainer Blatt<sup>1,4</sup>

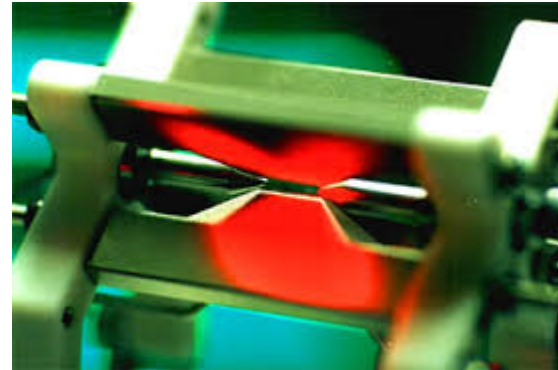
## **Universal Digital Quantum Simulation with Trapped Ions**

B. P. Lanyon,<sup>1,2\*</sup> C. Hempel,<sup>1,2</sup> D. Nigg,<sup>2</sup> M. Müller,<sup>1,3</sup> R. Gerritsma,<sup>1,2</sup> F. Zähringer,<sup>1,2</sup>  
P. Schindler,<sup>2</sup> J. T. Barreiro,<sup>2</sup> M. Rambach,<sup>1,2</sup> G. Kirchmair,<sup>1,2</sup> M. Hennrich,<sup>2</sup> P. Zoller,<sup>1,3</sup>  
R. Blatt,<sup>1,2</sup> C. F. Roos<sup>1,2</sup>

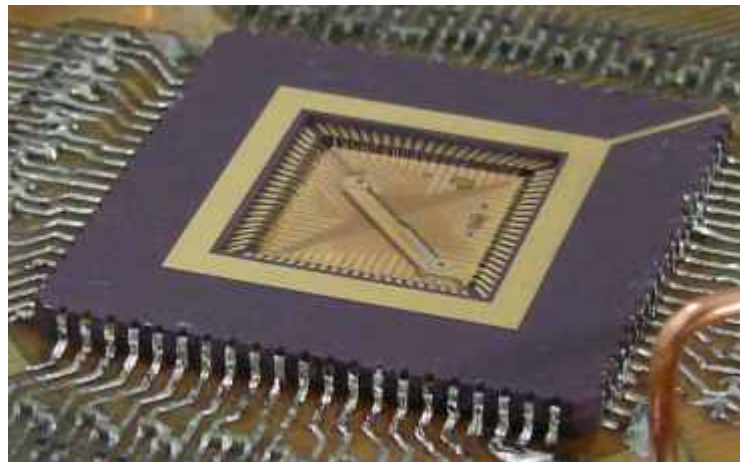
# Paul Traps



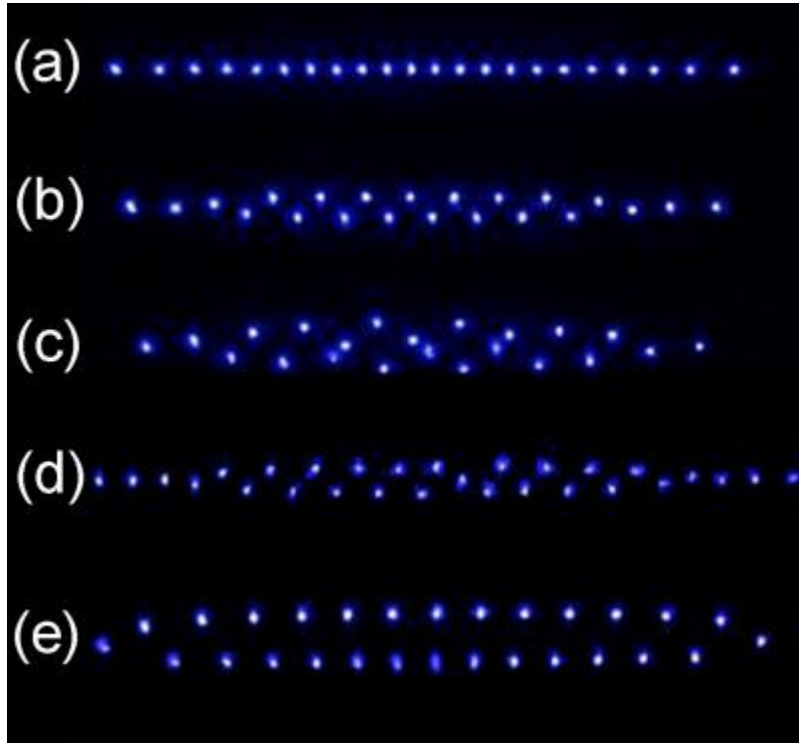
Uni Greifswald



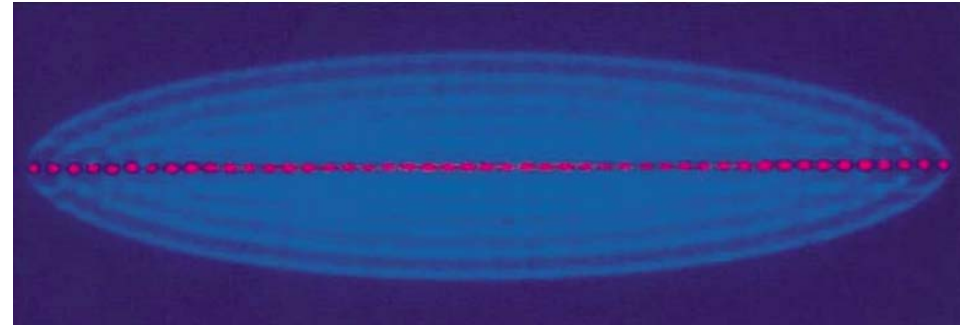
Uni Innsbruck



Uni Ulm / Mainz



PTB



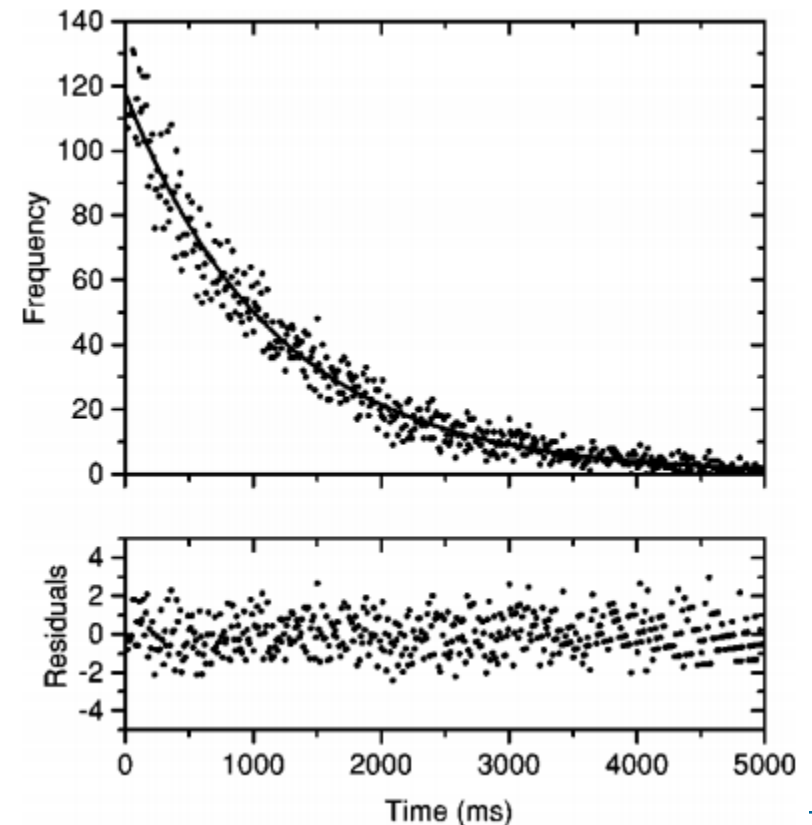
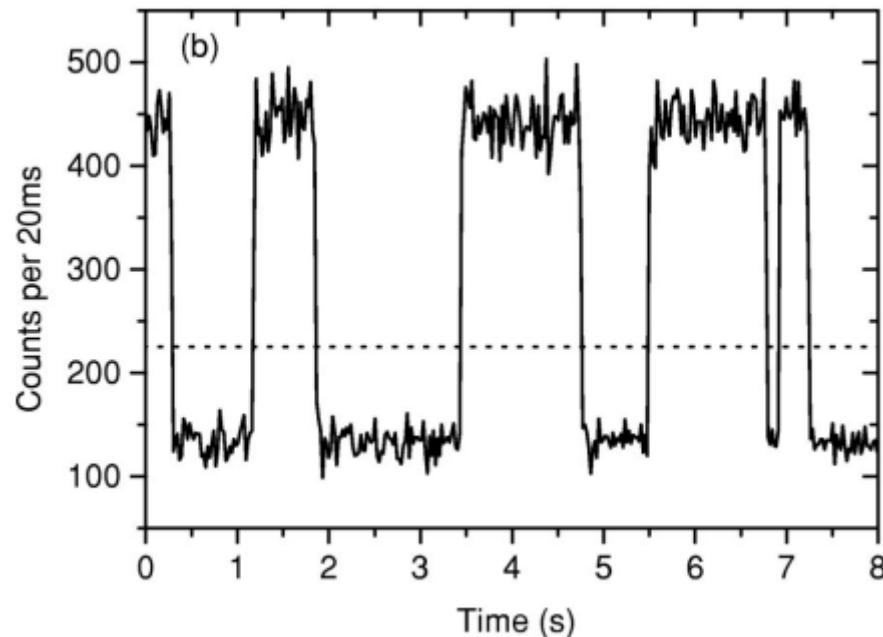
Aarhus

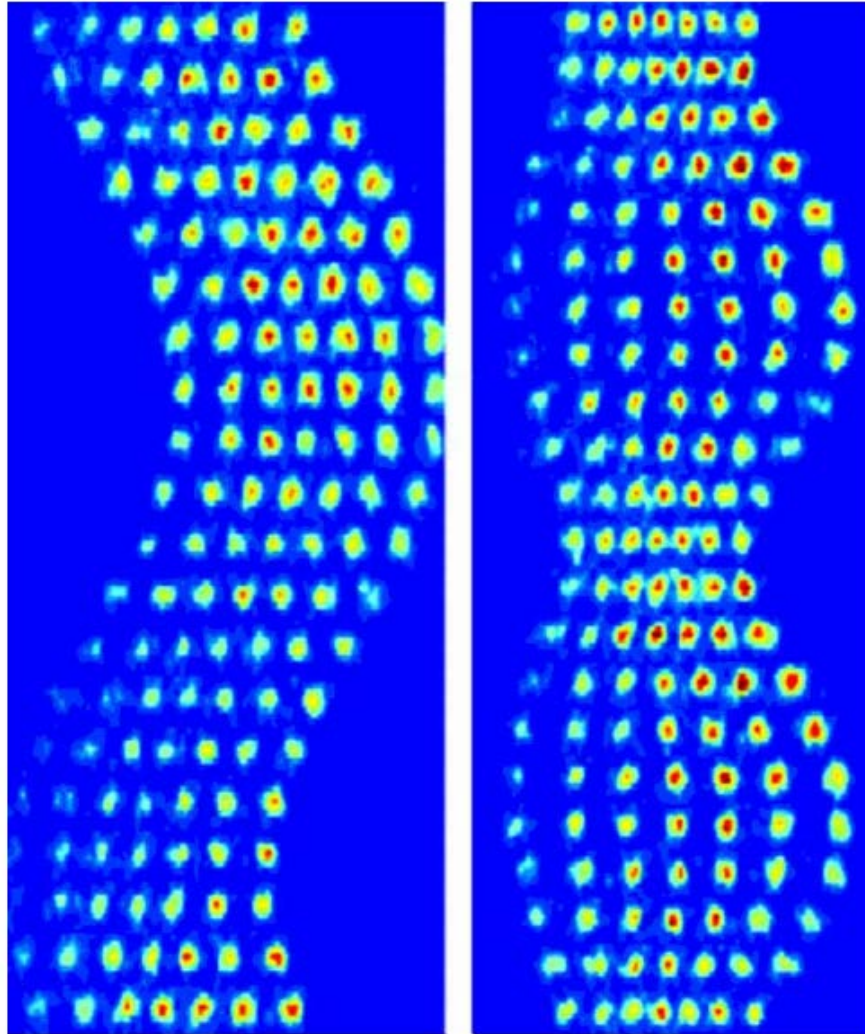


PHYSICAL REVIEW A, VOLUME 62, 032503

## Measurement of the lifetime of the $3d^2D_{5/2}$ state in $^{40}\text{Ca}^+$

P. A. Barton, C. J. S. Donald, D. M. Lucas, D. A. Stevens, A. M. Steane, and D. N. Stacey  
*Centre for Quantum Computation, Department of Atomic and Laser Physics, University of Oxford,  
Clarendon Laboratory, Parks Road, Oxford OX1 3PU, England*  
(Received 23 December 1999; published 14 August 2000)





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