



NAVIGARE 2012

Smart Sensors for Motion

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Standort Biel



Standort Burgdorf Tiergarten



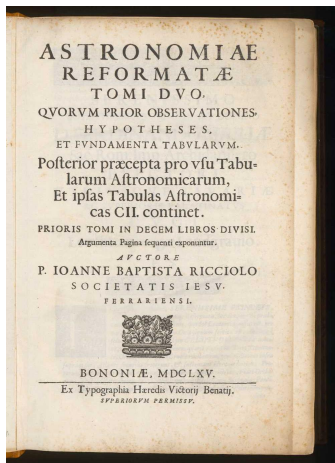
BUAS is one out of 7 Universities of Applied Sciences in Switzerland

- 6 Departments with a total 5000 Students
- 1200 Students in the Dept. of Engineering and Information Technology
- External Turnover with aR&D \approx 10 Mio CHF (+ 2.5 Mio CHF internal)
- Over 10 Innovation Prizes since 1993 (Solar Car, Glider Plane, Joy-Steer)
- Strategic Programs in Energy, Mobility and Transportation

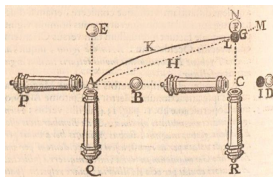
$$m \frac{d\mathbf{v}}{dt} = -\frac{\partial U}{\partial \mathbf{r}} - m\mathbf{W} + m\mathbf{r} \times \dot{\boldsymbol{\Omega}} + \underbrace{2m\mathbf{v} \times \boldsymbol{\Omega}} + m\boldsymbol{\Omega} \times (\mathbf{r} \times \boldsymbol{\Omega})^1$$

Corioliskraft: $F_{Cor.} = 2m\mathbf{v} \times \boldsymbol{\Omega}$

¹ L. Landau et F. Lifchitz, *Mécanique*, trad. Claude Ligny, Éditions MIR, Moscou, 1981, Formel (39,7), Seite 192



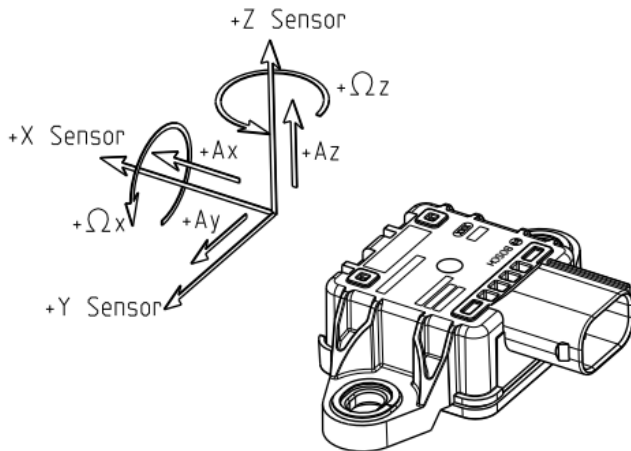
² G. B. Riccioli, *Almagestum Novum* vol. 2, Bologna, Italia (1651), p. 425.



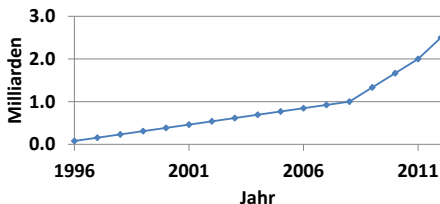
If a ball is fired along a Meridian toward the pole (rather than toward the East or West), diurnal motion will cause the ball to be carried off [that is, the trajectory of the ball will be deflected], all things being equal: for on parallels of latitude nearer the poles, the ground moves more slowly, whereas on parallels nearer the equator, the ground moves more rapidly^{3, 4}.

³ Christopher M. Graney, *Phys. Today*, 64(8), Coriolis effect, two centuries before Coriolis

⁴ <http://www.e-rara.ch/zut/content/pageview/141030>.



**MEMS Stückzahlen eines namhaften
Herstellers in Mia**



1.3 Mio MEMS Sensoren / Arbeitstag

⁵ <http://www.elektronikpraxis.vogel.de> vom 30.12.2011

A big Thank goes to the Crash-Enablers



BOSCH