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Gravity, Magnetic and Electromagnetic Gradiometry  
(Second Edition)

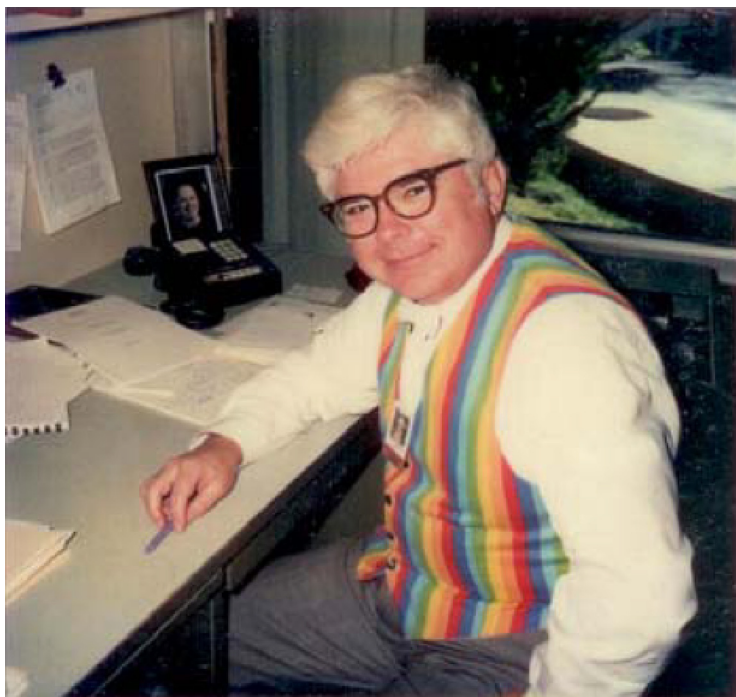
Strategic technologies in the 21st century

Alexey V Veryaskin

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## Appendix

See figures [A1–A15](#).



**Figure A1.** A rare photograph of Robert Forward—a physicist, science fiction writer and the inventor of the resonant rotating gravity gradiometer (possibly in his office at the Hughes Aircraft Research Laboratory). Reproduced with permission of the Robert L. Forward Collection, Special Collections and Archives, University of Alabama in Huntsville.



**Figure A2.** Tom Meyer (Lockheed Martin Corporation) presenting a talk about the latest breakthroughs in gravity gradiometry at the LMC, the 25th ASEG-PESA-AIG Conference and Exhibition, Adelaide, October 2016. Reproduced with permission of the presenter and Geoscience Australia.



**Figure A3.** The Graviometry Department of the Sternberg State Astronomical Institute of Moscow State University (1976). Victor Nazarenko (the fourth from the left, top row) was a talented physicist and a gravity gradiometry researcher in the former Soviet Union. The author of this book is standing in the first row on the left.



**Figure A4.** Gravitec's direct string magnetic gradiometer being prepared for flight tests at FUGRO's hangar at Perth's Jandakot airport left to right: Michael Asten (BHP), Howard Golden (WMC), Alexey Veryaskin (Gravitec) and Peter Wolfgram (FUGRO Airborne Services 2003). (b) The magnetic gradiometer assembly is installed in the vertical 'stinger' section attached to the tale of a Cessna plane.



**Figure A5.** One of the first ground-base tests of the VK-1 superconducting gravity gradiometer developed at the University of Western Australia (1989). Left to right: Cyril Edwards, Tony Mann, Rob Matthews, Frank van Kann, Mark Dransfield, Mike Buckingham and Peter Turner. Courtesy of Frank van Kann.



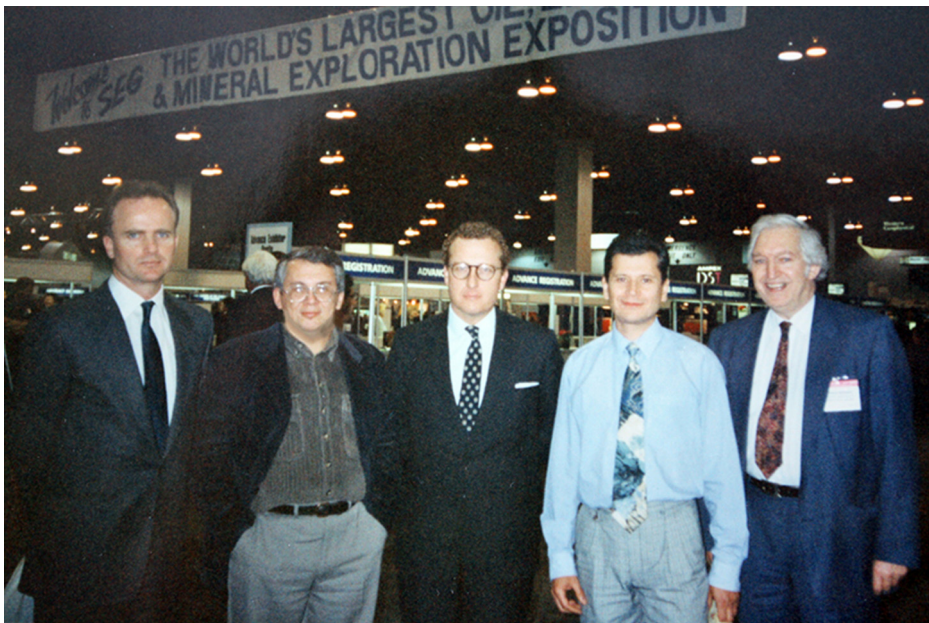
**Figure A6.** Levity among the gravity 2011: Frank van Kann shares a joke with Prince Philip, Alan Robson (a former UWA Vice-Chancellor), Tom Albanese (Rio Tinto) and Michael Chaney (Chancellor of the UWA). Courtesy of Frank van Kann.



**Figure A7.** The author pictured beside the original Eötvös torsion balance while visiting the Geological and Geophysical Institute of Hungary in 2006. Courtesy of the GGIH and the Lorand Eötvös Museum.



**Figure A8.** Andrew Sunderland (University of Western Australia) demonstrating the basic principles of the direct string magnetic gradiometer at the UWA Open Day, 2009.



**Figure A9.** The rise of the Gravitec Instruments. A novel String Gravity Gradiometer was presented at an SEG Conference in Denver (Colorado, USA) in 1996. On the left: Simon Fraser (Director and a Founder), Alexey Veryaskin (Technical Director) and Clive Hayley (Director and a Founder).



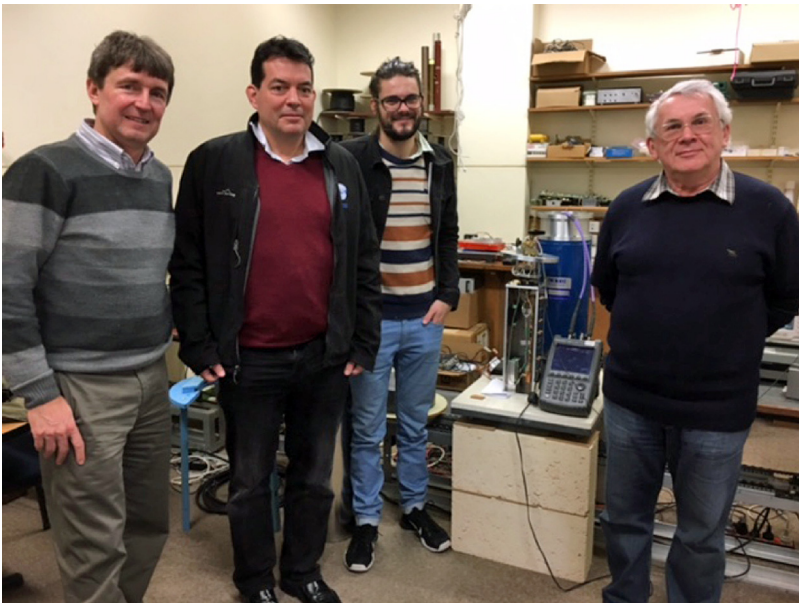
**Figure A10.** The first EM ELF gradiometer field trial with Regis Resources Pty Ltd commenced in July 2009 in a regional outback Australia in relatively difficult terrain. The monitoring system (CPU, oscilloscope, power amplifier, adjustable power supply, laptop) powered by a small generator was temporarily set up in the back of a Landcruiser trayback. This was connected to the transmitter-receiver unit, which was towed 5 metres behind the vehicle, mounted on the woodentrolley. The results of the field tests have been positive. The system was able to identify known EM conducting targets in the trial area and a number of anomalies were detected in the data collected in an area where geochemical signatures had indicated the likely potential of a massive nickel sulphide deposit. Participants: Jens Balkau (Regis Resources), Tara French (Regis Resources), Nathan Litchfield (Regis Resources) and Alexey Veryaskin (Trinity Research Labs/UWA).



**Figure A11.** The author testing a handheld EM ELFIS™ gradiometer in Sepon (Laos) that was developed for UXO detection in 2012.



**Figure A12.** ‘Mad Alex’—the author of this book testing some new ideas for using EM gradiometry to search for gold nuggets at the ‘golden salt lake’, at Johnson in Western Australia, 2016.



**Figure A13.** The TAIPAN gravity gradiometer team (2017): Tom Schnepfle (UWA), Mike Tobar (UWA), Jeremy Bourhill (UWA) and Alexey Veryaskin (Trinity Research Labs and UWA).





**Figure A14.** The hunt for shallow gold-bearing quartz veins with an ELF electromagnetic gradiometer in a Northern province of Malaysia in 2016. The author is on the far right of the image.

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**Figure A15.** A group photo of the members of the Dark Matter and Quantum Technology Laboratory (QDM Lab) at the University of Western Australia (2020).