



Prof. Francis W. O. Aduol

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### **Current Position**

The Principal of The Kenya Polytechnic University College

### **Academic Qualifications**

- Dr.-Ing. (Geodesy). University of Stuttgart, Germany, 1988
- M.Sc. (Geodetic Surveying), University of Nairobi, 1981
- B.Sc. Eng. (Surveying and Photogrammetry), University of Nairobi, 1976

### **Professional Qualifications**

- MISK

## **Areas of Specialisation**

- Geodesy
- Geodetic Positioning and Navigation
- Adjustment Theory and Computations
- Mathematical Cartography
- Engineering Surveying
- General Surveying and Mapping

## **Academic/Professional Career**

- Land surveyor, Survey of Kenya, 1977 -1977
- Tutorial Fellow, Department of Surveying, University of Nairobi, 1977 – 1981
- Lecturer, Department of Surveying, University of Nairobi, 1981 – 1988
- Senior Lecturer, Department of Surveying, University of Nairobi, 1988 – 1994
- Associate Professor, Department of Surveying, University of Nairobi, 1994 – 2001
- Professor, Department of Surveying, University of Nairobi, 2001

## **Administrative Positions Held**

- Chairman, Department of Surveying, University of Nairobi, 1991 – 1995
- Dean, Faculty of Engineering, University of Nairobi, 1995 – 1999
- Principal, College of Architecture and Engineering, University of Nairobi, 1999 –2008

## **Scholarships and Fellowships Held**

- DAAD (German Academic Exchange Service) Scholarship, University of Stuttgart, 1984 -1988
- DAAD (German Academic Exchange Service) Fellowship, University of Karlsruhe, 1993 and 1998

## Selected Publications

1. **Aduol FWO**. 1981: [Optimisation of a three-dimensional terrestrial geodetic network](#). *MSc thesis*, University of Nairobi, 1981.
2. **Aduol FWO**. 1981: [Optimisation of three-dimensional terrestrial geodetic networks](#). *Second Symposium on Geodesy in Africa*, Nairobi, Kenya, 1981.
3. **Aduol FWO**. 1983: [Four lectures on geodetic network analysis: \(i\) Practical techniques for computation of geodetic networks; \(ii\) A possible course of action for the reestablishment of the Eastern African geodetic network; \(iii\) Geodetic network analysis by conventional techniques; \(iv\) Fundamentals of three-dimensional geodesy](#). *UNDP Graduate Course in Geodesy for Eastern Africa, UN Regional Centre for Services in Surveying, Mapping, and Remote Sensing*, Nairobi, Aug 1983:
4. **Aduol FWO, Schaffrin B**. 1986: [On outlier identification in geodetic networks using principal component analysis](#). *International Conference on Influential Data Analysis*, University of Sheffield, Sheffield, UK, April 1986.
5. **Aduol FWO**. 1987: [Detection of outliers in geodetic networks using principal component analysis and bias parameter estimation](#). *Technical Report No. 2, Institute of Geodesy*, University of Stuttgart, 1987, 104pp.
6. **Aduol FWO**. 1989: [Integrierte geodätische Netzanalyse mit stochastischer Vorinformation über Schwerefeld und Referenz ellipsoid](#). *Deutsche Geodätische Kommission (German Geodetic Commission)*, Report No. C-351, Munich, 1989, 111pp.
7. **Aduol FWO, Schaffrin B**. 1990: [Geodetic models for monitoring crustal deformation along the African Rift System](#). *IASPEI/UNESCO/ICL Regional Seismological Assembly in Africa*, Nairobi, Aug. 1990.

8. **Aduol FWO**. 1993: [A static-dynamic model for densification of geodetic networks](#). *Allgemeine Vermessungs-Nachrichten, International Edition*, 1993, Karlsruhe, Germany.
9. **Aduol FWO**. 1993: [A model for the establishment of integrated regional geodetic datum](#). *Survey Review*, Vol. 32, No 250, Oct 1993, London.
10. **Aduol FWO**. 1994: [Robust geodetic parameter estimation through iterative weighting](#). *Survey Review*, Vol. 32, No 252, April 1994, London.
11. **Aduol FWO**. 1995: [A three-dimensional adjustment model for small scale survey networks](#). *South African Journal of Surveying and Mapping*, Vol. 23, Part 1, April 1995.
12. **Aduol FWO, Kingoriah GK, Mbatha CM, Mulaku GC**. 1995: [The surveying profession into the 21st century](#). *The Kenya Surveyor*, Vol. 3 No 4 Nov/Dec 1994 and Vol. 4 No 1 June 1995, Nairobi.
13. **Aduol FWO, Syagga PM, Mbatha CM, Mulaku GC**. 1995: [Education for a modern integrated survey professional: a model curriculum with special reference to developing countries](#). *Presented at the Commonwealth Association of Surveying and Land Economy (CASLE) and the International Federation of Surveyors (FIG) Seminar*, Harare, 13 -17 August 1995).
14. **Aduol FWO**. 1995: [The surveying profession beyond the year 2000 with reference to the profession in Kenya](#). *Institution of Surveyors of Kenya Seminar*, 23rd July 1995, Nairobi.
15. **Musyoka SM, Aduol FWO**. 1997: [A three-dimensional geodetic network model for the analysis of localised earth deformation](#). *Survey Review*, Vol. 34, No 263, Jan 1997, London.
16. **Aduol FWO**. 1997: [A model for a four-dimensional regional geodetic reference datum](#). *Survey Review*, Vol. 34, No 264, April 1997, London.

17. **Aduol FWO**. 1997: Project KENREF: [The Kenya geodetic reference system project](#).  
*United Nations / European Space Agency Symposium on Space Industry Cooperation with the Developing World*. Graz, Austria, 8 -11 September 1997.
18. **Aduol FWO**. 1998: [Engineering education at the University of Nairobi](#). Kenya  
*Engineer Journal of the Institution of Engineers of Kenya*, Vol. 18, No 2, March/April 1998, Nairobi.
19. **Aduol FWO**. 1998: [The surveying profession beyond the Year 2000 and the Kenyan surveyor](#). *Second Licensed Surveyors Seminar*, Kenya Institute of Surveying and Mapping (KISM), Nairobi, 27th August 1998. *The Kenya Surveyor*, Vol. 7, No.1, pp18–19. May/June 1999.
20. **Awange JL, Aduol FWO**. 1999: *An evaluation of some robust estimation techniques in the estimation of geodetic parameters*. *Survey Review*, Vol. 35, No 273, July 1999, London.
21. **Aduol FWO**. 1999: [Robust geodetic parameter estimation under least squares through weighting on the basis of the mean square error](#). *Quo vadis geodesia...? Festschrift for Erik W. Grafarend on the occasion of his 60th birthday*. *Technical Reports of the Department of Geodesy and Geinformatics*, University of Stuttgart, Report Nr. 1999.6-1, October 1999, pp. 5-15.
22. **Aduol FWO**. 1999: [Establishing teaching staff requirements for university academic programmes](#). *Higher Education Policy*, 12/1 (1999) 101-106. Elsevier Science Ltd.
23. **Aduol FWO**. 2001. [A model for estimating student unit cost and staffing requirements for university programmes with reference to Kenyan public universities](#). *Higher Education Policy*, 14/2 (2001) 117-140. Elsevier Science Ltd.
24. **Aduol FWO**. 2001. [Financing public universities in Kenya: a model based on rationalised student unit costs and staffing](#). *International Conference on Transformation of Higher Education Management Leadership Efficacy in Africa*. Nov 12 – 16, 2001, Kenyatta University, Nairobi, Kenya.
25. **Awange JL, Aduol FWO**. 2002. [An evaluation of some robust estimation techniques in the estimation of geodetic parameters – Part II](#). *Survey Review*, Vol. 36, No 283, January 2002, London.
26. **Gacoki TG, Aduol FWO**. 2002. [Transformation between GPS coordinates and local plane UTM coordinates using the Excel spreadsheet](#). *Survey Review*, Vol. 36, No.284, April, 2002.

27. **Aduol FWO**. 2003. [Robust geodetic parameter estimation under least squares through weighting on the basis of the mean square error](#). In *Geodesy – The Challenge of the Third Millennium* (Eds. E. W. Grafarend, F. W. Krumm, and V. S. Schwarze), Springer Verlag: Berlin, Heidelberg, New York, etc, 2003.
28. **Aduol FWO**. 2006. [From rope-stretchers to e-mapping](#). Professorial Inaugural Lecture, University of Nairobi, 26th May 2006