

**ΒΙΟΓΡΑΦΙΚΑ ΣΤΟΙΧΕΙΑ**

***ΓΕΩΡΓΙΟΥ Α. ΚΥΡΙΑΚΟΥ***

Αν. Καθηγητή

**ΔΗΜΟΚΡΙΤΕΙΟΥ ΠΑΝΕΠΙΣΤΗΜΙΟΥ ΘΡΑΚΗΣ**  
(Τμ. ΗΜΜΥ)

## Πίνακας επιλεγμένων βιογραφικών στοιχείων

Όνομα	<b>Γεώργιος Α. Κυριακού</b>
Θέση στο Έργο	Συντονιστής & Υπεύθυνος 1 <sup>ης</sup> ερευνητικής ομάδας.
Θέση στο Ίδρυμα	<b>Αναπληρωτής Καθηγητής</b>
Προπτυχιακοί τίτλοι σπουδών	Δίπλωμα Ηλεκτρολόγου Μηχανικού και Μηχανικού Υπολογιστών
Μεταπτυχιακοί τίτλοι σπουδών	Διδακτορικό Δίπλωμα, Τμήμα Ηλεκτρολόγων Μηχανικών του Δ.Π.Θράκης
Ειδικές γνώσεις στο γνωστικό αντικείμενο του ΥΧΥΕ	25ετης ερευνητική εμπειρία στο αντικείμενο των Μικροκυμάτων και τυπωμένων κεραιών.  20ετής διδακτική εμπειρία στα αντικείμενα: Μικροκυμάτων, Σχεδιασμός μικροκυματικών κυκλωμάτων, Μετρήσεις και έλεγχος Μικροκυματικών διατάξεων, Οπτικών Τηλεπικοινωνιών και Συστημάτων Ραντάρ.
Γνώσεις στη χρήση νέων τεχνολογιών	Γλώσσες προγραμματισμού FORTRAN, MATLAB,  Λειτουργικά Συστήματα UNIX, MS-WINDOWS, DOS  Χειρισμός PC, Workstations, Διαδίκτυο.
Εμπειρία από συμμετοχή σε ερευνητικά προγράμματα	Επιστημονικός Υπεύθυνος σε 8 Ερευνητικά Προγράμματα  Συμμετοχή σε 17 Ερευνητικά Προγράμματα  Αξιολόγηση Ερευνητικών Έργων ΠΑΒΕ, ΕΠΕΤ II.
Ερευνητική Ομάδα που τυχόν ανήκετε	Εργαστήριο Μικροκυμάτων του Δ.Π.Θ.
Αριθμός διδακτορικών που έχετε επιβλέψει	Πέντε (5) διδακτορικές διατριβές και 4 σε εξέλιξη  Πέντε (5) μεταπτυχιακές διατριβές ειδίκευσης και 3 σε εξέλιξη
Σύνολο δημοσιεύσεων (αριθμός)	48 εργασίες σε επιστημονικά περιοδικά  9 εργασίες σε διαδικτυακά (online) επιστημονικά περιοδικά  95 εργασίες σε πρακτικά διεθνών συνεδρίων
Σύνολο αναφορών (αριθμός)	135 ετεροαναφορές
Πέντε τίτλοι δημοσιεύσεων στο γνωστικό αντικείμενο του ΥΧΥΕ δύο εκ των οποίων	“A Nonlinear Finite-Element Leaky-Waveguide Solver”, Citations 3 - scopus. “Eigenvalue Analysis of Curved Waveguiding Structures

Έγιναν τη τελευταία 3-ετία, και αντίστοιχος αριθμός αναφορών	Employing an Orthogonal Curvilinear Frequency Domain Finite Difference Method”, <i>Citations 1 - scopus</i> . “Wiener-Hopf Analysis of planar canonical structures loaded with longitudinally magnetized plasma, biased normally to the extra-ordinary propagating wave”, <i>Citations 0</i> . Development of an Adaptive and A Switched Beam Smart Antenna System for Wireless Communications”, <i>Citations 12-scopus</i> . "Electromagnetic Radiation from Sources Embedded In a Cylindrically Stratified Unbounded Gyrotropic Medium", <i>Citations 0</i> .
Μονογραφίες	Techniques in Electrical Impedance Tomography”, a book chapter in “Medical Imaging Techniques and Applications: Modalities
Πέντε σημαντικότερες αναφορές	
Εθνικές και Διεθνείς διακρίσεις (οργάνωση συνεδρίων, μέλος οργανισμών κλπ.)	Είναι μέλος του ΤΕΕ από το 1984 και του ΙΕΕΕ από το 1990, Πρεσβύτερο (Senior) μέλος του Ι.Ε.Ε.Ε. από το 2005. Αντιπρόσωπος της Ελλάδος στο Commission A of URSI από το 2000, μέλος της Ευρωπαϊκής Ένωσης Μικροκυμάτων, EuMA από το 2005 και μέλος της Ηλεκτρομαγνητικής Ακαδημίας από το 2000.

### ΠΙΝΑΚΑΣ ΔΗΜΟΣΙΕΥΣΕΩΝ

## ΓΕΩΡΓΙΟΣ Α. ΚΥΡΙΑΚΟΥ

### 1. Ατομικά στοιχεία

Ημερομηνία γεννήσεως : 25 Μαρτίου 1959

Τόπος γεννήσεως : Μάνδρες Αμμοχώστου, ΚΥΠΡΟΣ

Διεύθυνση εργασίας : Εργαστήριο Μικροκυμάτων

Τομέας Τηλεπικοινωνιών & Διαστημικής

Δημοκρίτειο Πανεπιστήμιο Θράκης.

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Διεύθυνση κατοικίας : Εύμοιρο, Ξάνθη 67 100,

Απασχόληση : Αναπληρωτής Καθηγητής Δ.Π.Θράκης

Οικογενειακή κατάσταση : Έγγαμος, πατέρας τεσσάρων παιδιών

Ξένες γλώσσες : Αγγλική

Γεννήθηκε στις Μάνδρες Αμμοχώστου - Κύπρου το 1959. Το 1984 πήρε το

*δίπλωμα του Ηλεκτρολόγου Μηχανικού και το 1988 το Διδακτορικό Δίπλωμα από το Τμήμα Ηλεκτρολόγων Μηχανικών του Δημοκρίτειου Πανεπιστημίου Θράκης. Το 1990 διορίσθηκε σε θέση Λέκτορα, το 1994 προήχθηκε σε Επίκουρο καθηγητή και τον Οκτώβριο του 2000 εκλέχθηκε Αναπληρωτής καθηγητής στο ίδιο Πανεπιστήμιο.*

Είναι μέλος του ΤΕΕ από το 1984 και του ΙΕΕΕ από το 1990, Πρεσβύτερο (Senior) μέλος του Ι.Ε.Ε.Ε. από το 2005. Αντιπρόσωπος της Ελλάδος στο Comission A of URSI από το 2000, μέλος της Ευρωπαϊκής Ένωσης Μικροκυμάτων, EuMA από το 2005 και μέλος της Ηλεκτρομαγνητικής Ακαδημίας από το 2000.

## **2. Ερευνητικά Ενδιαφέροντα**

*Τα ερευνητικά του ενδιαφέροντα περιλαμβάνουν την Ανάλυση και το Σχεδιασμό Μικροκυματικών Ολοκληρωμένων Κυκλωμάτων και τυπωμένων Κεραιών σε επίπεδο και κυλινδρικό υπόστρωμα, ιδιαίτερα πάνω σε ανισότροπα διηλεκτρικά, μαγνητισμένους Φερριτες, καθώς και μαγνητισμένο Πλάσμα. Οι μελέτες αυτές διεξάγονται τόσο με Αριθμητικές όσο και με Αναλυτικές τεχνικές με ιδιαίτερη έμφαση στα ακόλουθα.*

- Εφαρμογή της μεθόδου Wiener-Hopf για την ακριβή ηλεκτρομαγνητική ανάλυση κεραιών και μικροκυματικών κυκλωμάτων τυπωμένων σε ανισότροπα και ηλεκτρονικά ελεγχόμενα υλικά απλού ή πολλαπλών υποστρωμάτων και επιστρώσεων, συμπεριλαμβανομένων των ανισότροπων διηλεκτρικών, φερριτών, φερροηλεκτρικών υλικών και πλάσμα στερεάς κατάστασης.
- Ανάλυση και σχεδιασμός μικροκυματικών διατάξεων με τη μέθοδο προσαρμογής ρυθμών.
- Ανάπτυξη Υβριδικών αριθμητικών τεχνικών για την επίλυση ηλεκτρομαγνητικών προβλημάτων ανοικτής-ακτινοβολούσας γεωμετρίας (Ιδιοτιμές δισδιάστατων και κατανομές πεδίου τρισδιάστατων γεωμετριών). Έμφαση στις μεθόδους Πεπερασμένων Στοιχείων (FEM) και Πεπερασμένων Διαφορών στο πεδίο της συχνότητας (FDFD).
- Σχεδιασμός δικτύων διαμόρφωσης δέσμης για έξυπνες κεραιές ή συστοιχίες φάσης και διατάξεις ακτινοβολητών κύματος διαρροής (leaky wave structures).
- Τομογραφία Μικροκυμάτων και Τομογραφία Ηλεκτρικής Αντίστασης για Ιατρικές και Γεωφυσικές εφαρμογές.
- Μελέτη ακτινοβολητών πάνω από το έδαφος και ιδιαίτερα την ανίχνευση αντικειμένων με μεθόδους ραδιοσυχνότητας.
- Μελέτη προβλημάτων ασφάλειας από έκθεση σε ηλεκτρομαγνητική ακτινοβολία

## **3. Διδασκαλία Προπτυχιακών Μαθημάτων:**

Μικροκύματα, Σχεδιασμός Μικροκυματικών Κυκλωμάτων, Συστήματα Ραντάρ, Μετρήσεις Υψηλών Συχνοτήτων, Οπτικές Τηλεπικοινωνίες.

- Έχει επιβλέψει 71 Διπλωματικές Εργασίες.

#### **4. Διδασκαλία Μεταπτυχιακών Μαθημάτων**

Σχεδιασμός Μικροκυματικών Ολοκληρωμένων Κυκλωμάτων, Ειδικά κεφάλαια Μικροκυμάτων, Μετρήσεις και έλεγχος μικροκυματικών διατάξεων.

- Έχει επιβλέψει 4 διδακτορικές διατριβές, ενώ επιβλέπει άλλες σε εξέλιξη 4.
- Έχει επιβλέψει 5 μεταπτυχιακές διατριβές ειδίκευσης, ενώ επιβλέπει άλλες 3.

#### **5. Συμμετοχή σε ερευνητικά προγράμματα**

- Επιστημονικός υπεύθυνος σε 8 ερευνητικά προγράμματα, ενώ συμμετείχε σε άλλα 17.

#### **6. Διεθνείς Συνεργασίες – Εκπαιδευτικές Άδειες**

- Εκπαιδευτική άδεια ενός μήνα στην εταιρεία Alenia Spazio στη Ρώμη, τον Ιούλιο του 1995.
- Εκπαιδευτική άδεια δύο μηνών στο Τμήμα Ηλεκτρομαγνητικών Συστημάτων του Τεχνικού Πανεπιστημίου της Δανίας (EMI-DTU) τον Αύγουστο και Σεπτέμβριο του 1998.
- Σύναψη συμβάσεων συνεργασίας στα πλαίσια του SOCRATES/ERASMUS για τα έτη 2000-2003 :
  - α) Τμήμα Ηλεκτρομαγνητικών Συστημάτων του Τεχνικού Πανεπιστημίου της Δανίας (EMI-DTU) με συνυπεύθυνο τον καθηγητή Olav Breinbjerg με θέμα "Applied Electromagnetism".
  - β) Τμήμα Ηλεκτροτεχνίας του Καθολικού Πανεπιστημίου της Leuven (ESAT-B LEUVEN-01) με συνυπεύθυνο τον καθηγητή κ. Bart Nauwelaers με θέμα "Microwave device modelling and Circuit design".

## **ΚΑΤΑΛΟΓΟΣ ΕΡΓΑΣΙΩΝ**

### **A. Διδακτορική Διατριβή**

“Μελέτη Ορθογωνικών και Τριγωνικών Μικροταινιακών Κεραιών”,  
Τμήμα Ηλεκτρολόγων Μηχανικών, Πολυτεχνική Σχολή, Δημοκρίτειο Πανεπιστήμιο Θράκης, Ξάνθη 1988.

### **B. Δημοσιεύσεις σε διεθνή επιστημονικά περιοδικά με κριτές.**

- B1. J.N. Sahalos and G. Kyriacou, “On the electromagnetic detection of the thickness of a coal or lignite seam with slate backing”, Journal of the Franklin Institute. Pergamon

press, vol. 320, No.2, pp.83-101, August 1985.

- B2. G. Kyriacou and J.N. Sahalos, "An easy to use method to define the input impedance of a probe-fed rectangular microstrip antenna" *Archiv für Electrotechnik* vol.70, Springer-Verlag, pp.349-357, 1987.
- B3. E. Vlachogiannis, G. Kyriacou, C. Koukourlis, N. Gotsis and J.N. Sahalos, "Determination of the physical state of the human thorax by means of impedance plethysmography", *Archiv für Electrotechnik*, vol.71 Springer-Verlag, pp.99-105, 1988.
- B4. G.A. Kyriacou and J.N. Sahalos, "Input Impedance of a 30 -60 -90 Triangular Patch Antenna", *Canadian J. of Physics*, vol.67, pp.1044-1047, 1989.
- B5. G.A. Kyriacou and J.N. Sahalos, "The geometrical theory for the input impedance of the isosceles orthogonal triangular microstrip patch antenna", *Archiv für Electrotechnik* 73, Springer-Verlag, pp.365-371, 1990.
- B6. G.A. Kyriacou, C.S. Koukourlis, J.N. Sahalos and K. Batas, "Reconstruction of Impedance Images using a modified Perturbation Method", *Clinical Physics and Physiological Measurements*, vol.13, suppl. A, pp.91-94, 1992.
- B7. C.S. Koukourlis, G.A. Kyriacou and J.N. Sahalos, "Differential Synchronous Demodulator for E.I.T.", *Clinical Physics and Physiological Measurements*, vol.13, suppl. A, pp.31-34, 1992.
- B8. C.S. Koukourlis, V.K. Trigonidis, G.A. Kyriacou, J.N. Sahalos and K. Batas, "Performance of a differential Synchronous Demodulator for E.I.T.", *Clinical Physics and Physiological Measurements*, vol.13, suppl. A, pp.35-38, 1992.
- B9. J.N. Sahalos, E.Vlachogiannis, C.S. Koukourlis, G.A. Kyriacou and K. Batas, "Electrical Impedance Measurement for Pulmonary Disease Diagnosis", *Clinical Physics and Physiological Measurements*, vol.13, suppl.A, pp.171-174, 1992.
- B10. G.P. Pavlos, G.A. Kyriacou, A.G. Rigas, P.I. Liatsis, P.C. Trochoutsos and A.A.Tsonis, "Evidence for strange attractor structures in space plasmas", *Annales Geophysicae*, vol.10, pp.309-322, Springer-Verlag 1992.
- B11. G.P. Pavlos, D.Dialetis, G.A. Kyriacou and E.T. Sarris, "A preliminary low dimensional analysis of the solar cycle", *Annales Geophysicae*, vol.10, pp.759-762, Springer-Verlag 1992.
- B12. George A. Kyriacou and John N. Sahalos, "The edge admittance model for the study microstrips on uniaxial substrate", *Archiv für Electrotechnik*, vol.76, pp.169-179, Springer-Verlag, 1993.
- B13. C. Mertzianidis, M.T. Chryssomallis, G. Kyriacou and J.N. Sahalos, "Pattern Synthesis with a feed network consisting of lossy transmission line sections", *IEEE Trans. on Broadcasting*, vol.39, No.2, pp. 273-281, June 1993.
- B14. George A. Kyriacou, Christos S. Koukourlis and John N. Sahalos, "A Reconstruction Algorithm of Electrical Impedance Tomography with optimal configuration of the driven electrodes", *IEEE Transactions on Medical Imaging*, vol.12, pp.430-438, Sept. 1993.
- B15. C.S. Koukourlis, G.A. Kyriacou and J.N. Sahalos, "A 32 Electrode Data Collection System for Electrical Impedance Tomography", *IEEE Transactions on Biomedical Engineering*, vol. BME-42, no.6, pp.632-636, June 1995.
- B16. J.N. Sahalos, G.A. Kyriacou and E. Vafiadis, "An efficient Finite Element Algorithm for 3-D complex structures modeling", *Clinical Physics and Physiological*

Measurements, vol.15, suppl.2A, pp.65-68, May 1994.

- B17. G.A. Kyriacou and J.N. Sahalos, "Effects of substrate-superstrate uniaxial anisotropy on microstrip structures", *Electronics Letters*, vol.30, no.19, pp.1557-8, Sept. 1994.
- B18. C.S. Koukourlis, G.A. Kyriacou and J.N. Sahalos, "An improvement of the common mode rejection in EIT", *Innovation et Technologie en Biologie et Medecine*", Vol.15, special issue 1, pp.89-96, 1994.
- B19. G.A. Kyriacou and J.N. Sahalos, "A Wiener-Hopf type analysis of microstrips printed on uniaxial substrates: Effects of the substrate thickness", *IEEE Transactions on Microwave Theory and Techniques*, vol. MTT-43, no.8, pp.1967-1977, 1995.
- B20. G.A. Kyriacou and J.N. Sahalos, "Analysis of probe-fed short-circuited microstrip antenna", *IEEE Transactions on Vehicular Technology*, vol.45, no.3, pp.427-430, Aug. 1996.
- B21. G.A. Kyriacou and J.N. Sahalos, "Application of the edge admittance model in the analysis of microstrips printed on uniaxial substrates", *International Journal of Theoretical Electromagnetics*, no.6, Editor T.D. Tsiboukis, pp.133-140, Sept. 1996.
- B22. C.S. Koukourlis, J.E. Plevridis, G.A. Kyriacou and J.N. Sahalos, "Aspects of Application of Direct Digital Synthesizer (D.D.S.) in multifrequency E.I.T. Systems", *Innov. Techn. Biol. Med.*, vol.17, no.3, pp.265-272, 1996.
- B23. G.A. Kyriacou and J.N. Sahalos, "A Wiener-Hopf type analysis of uniaxial substrate-superstrate microstrips structures", *IEEE Transactions on Microwave Theory and Techniques*, vol. MTT-45, pp. 616-629, May 1997.
- B24. G.A. Kyriacou, P.M. Bonovas, M.A. Alexiou, C.S. Koukourlis and J.N. Sahalos, "An efficient Three dimensional FEM model of the Human Torso", *Innovation and Technology in Biology and Medecine*, vol. 18, no.4, pp. 291-308, 1997.
- B25. G.A. Kyriacou, C.S. Koukourlis, P.M. Bonovas and J.N. Sahalos, "A Reconstruction Algorithm for three dimensional Electrical Impedance Tomography", *Journal of Applied Electromagnetism (BSUAE)*, vol.1, pp.13-36, Oct. 1997.
- B26. George A. Kyriacou, "Wiener-Hopf type analysis of microstrip structures", *Applied Computational Electromagnetics: State of the art and future trends*, NATO-ASI series-F, vol.171, pp.439-466, Springer Verlag, Heidelberg, 2000.
- B27. A.P. Orfanidis, G.A. Kyriacou and J.N. Sahalos, "Fast analysis of cylindrical waveguide discontinuities based on closed form generalized scattering matrix Mode Matching Technique", *Journal of Applied Electromagnetism (BSUAE)*, vol.2, no.1, pp.1-15, Feb. 1999.
- B28. G.A. Kyriacou, P.M. Bonovas, C.S. Koukourlis and J.N. Sahalos, "Development of an Electrical Impedance Tomography System: Data Collection and Reconstruction Algorithm", *Journal of Applied Electromagnetism (BSUAE)*, vol. 2, no.4, pp.17-39, Dec. 1999.
- B29. A.P. Orfanidis, G.A. Kyriacou and J.N. Sahalos, "A Mode Matching Technique for the study of circular and coaxial waveguide discontinuities based on closed form coupling integrals", *IEEE Transactions on Microwave Theory and Techniques*, vol. MTT-48, pp.880-883, May 2000.
- B30. P.M. Bonovas, G.A. Kyriacou and J.N. Sahalos, "A realistic three dimensional FEM model of the human head", *Physiological Measurement*, vol. 22, pp. 65-76, 2001.
- B31. P. Allilomes, G. A. Kyriacou, E. Vafiadis, and J. N. Sahalos, "A FEM Analysis of open

- Boundary Structures Using Edge Elements and a Cylindrical Harmonics expansion,” *Electromagnetics*, vol. 24, pp. 69-79, Jan.-March 2004.
- B32. A.P. Orfanidis, G.A. Kyriacou, T. Samaras and J.N. Sahalos,” A mode matching analysis of multiple offset coaxial irises in a circular waveguide”, *Electronics Letters*, vol.40, no.2, pp.127-8, 2004.
- B33. P. Allilomes, G. A. Kyriacou, E. Vafiadis, and J. N. Sahalos, “Authors’ Reply to ‘Comments on A FEM Analysis of Open Boundary Structures Using Edge Elements and a Cylindrical Harmonics Expansion’ ”, *Electromagnetics*, vol. 24, no.6, pp. 493-495, Aug.-Sept. 2004.
- B34. A. V. Kudrin and E. Yu. Petrov, G. A. Kyriacou, and T. M. Zaboronkova, "Insulated cylindrical antenna in a cold magnetoplasma", *Progress In Electromagnetics Research*, vol. PIER 53, pp. 135–166, 2005
- B35. A. V. Kudrin, M. Yu. Lyakh, G. A. Kyriacou, and T. M.Zaboronkova, "Guided modes on radially nonuniform channels in a magnetoplasma," in: *Proc. International Seminar "Day on Diffraction'2004"*, pp.230-246, St. Petersburg University, St. Petersburg (2004).
- B36. A.A. Mavrides, G.A. Kyriacou and J.N. Sahalos, “Analysis of Circular Patch Antenna Tuned by a Ferrite Post”, *Microwave and Optical Technology Letters*, vol. MOTL-46, no.3, pp.234-237, August 5, 2005.
- B37. A.A. Mavrides, G.A. Kyriacou and J.N. Sahalos, “On The Design Of Patch Antennas Tuned By Transversely Magnetized Lossy Ferrite Including A Novel Resonating Mode” *Progress In Electromagnetics Research*, vol. PIER-62, p.p. 165–192, 2006
- B38. F. E. Fakoukakis, S. G. Diamantis, A. P. Orfanides and G. A. Kyriacou, “Development of an Adaptive and A Switched Beam Smart Antenna System for Wireless Communications”, *J. of Electromagnetic Waves and Applications*, Vol. 20, no. 3, pp. 399–408, 2006
- B39. F.E. Fakoukakis and G.A. Kyriacou, “SDMA Based on RF-Beamforming: A Switched Beam versus a Semi-Adaptive System”, *Proceedings of the European Microwave Association (EuMA)*, vol. 2, pp. 241-250, June 2006.
- B40. C.S. Lavranos and G.A. Kyriacou, “Eigenvalue Analysis of Curved Waveguides Employing FDFD Method in Orthogonal curvilinear co-ordinates”, *Electronics Letters*, vol. 42, no.12, pp.702-704, June 2006.
- B41. S.G. Diamantis, A.P. Orfanidis, G.A. Kyriacou and J.N. Sahalos, “A Hybrid Mode Matching and Auxiliary Sources Technique for Horn Antenna Analysis”, *Microwave and Optical Technology Letters*, vol. MOTL-49, Issue 3, pp. 734-739, March 2007.
- B42. P. C. Allilomes and G. A Kyriacou, “A Nonlinear Finite-Element Leaky-Waveguide Solver”, *IEEE Transactions on Microwave Theory and Techniques*, vol. MTT-55, pp. 1496-1510, July 2007.
- B43. George A. Kyriacou, “Wiener-Hopf Analysis of planar canonical structures loaded with longitudinally magnetized plasma, biased normaly to the extra-ordinary propagating wave”, *Progress in Electromagnetics Research B (PIER-B)*, vol. 5, pp. 1-34, 2008.
- B44. Christos S. Lavranos and George A. Kyriacou, “Eigenvalue Analysis of Curved Waveguiding Structures Employing an Orthogonal Curvilinear Frequency Domain Finite Difference Method”, *IEEE Transactions on Microwave Theory and Techniques*, vol. 57, pp. 594-611, March 2009.
- B45. S. G. Diamantis, A. P. Orfanidis and G. A. Kyriacou, “Conical Horn Antennas Analysis Employing an Offset Moment Method and Mode Matching Technique”, *IEEE Transactions on Magnetic*, vol. MAG-45, pp. 1092-5, March 2009.
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