

Πρόεδρος Συμβουλίου Π.Κ. κ. Δ. Τσιχρίτης - Δ.Υ. - Πρωτεύουσα

14/2/13

ΠΟΛΥΤΕΧΝΕΙΟ ΚΡΗΤΗΣ
Αρ. Πρωτ. 2308
Ημερομηνία 14-2-2013

OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT BATTELLE FOR THE DEPARTMENT OF ENERGY

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ΑΙΤΗΣΗ ΥΠΟΨΗΦΙΟΤΗΤΑΣ

13 Φεβρουαρίου, 2013

ΣΤΟΙΧΕΙΑ ΑΙΤΟΥΝΤΟΣ

ΕΠΩΝΥΜΟ:	ΔΑΤΣΚΟΣ
ΟΝΟΜΑ:	ΠΑΝΑΓΙΩΤΗΣ
ΟΝΟΜΑ ΠΑΤΡΟΣ:	ΓΕΩΡΓΙΟΣ
ΟΝΟΜΑ ΜΗΤΡΟΣ:	ΕΛΙΣΑΒΕΤ
ΗΜΕΡ. ΓΕΝΝΗΣΗΣ:	08-08-1961
ΤΟΠΟΣ ΓΕΝΝΗΣΗΣ:	ΒΕΡΔΙΚΟΥΣΣΑ ΛΑΡΙΣΑΣ
Δ/ΝΣΗ ΚΑΤΟΙΚΙΑΣ ΕΛΛ.:	ΔΡΟΜΟΝΕΡΟΥ 3, ΧΑΝΙΑ, 73 133 ΚΡΗΤΗ
Δ/ΝΣΗ ΚΑΤΟΙΚΙΑΣ ΗΠΑ:	8444 MECKLENBURG COURT, KNOXVILLE, TN 37923 ΗΠΑ
ΚΙΝ. ΤΗΛΕΦΩΝΟ:	6973-448377, 6973-305557

ΠΡΟΣ
ΠΟΛΥΤΕΧΝΕΙΟ ΚΡΗΤΗΣ

ΘΕΜΑ

Υποβάλλω και ζητώ να γίνει δεκτή η αίτηση υποψηφιότητας μου για την θέση του Πρύτανη του Πολυτεχνείου Κρήτης.

Κατά την παρούσα περίοδο είμαι προϊστάμενος/ διευθυντής ομάδας συστημάτων νανοτεχνολογίας/ νανοεπιστήμης και δομών στο Oak Ridge National Laboratory. Είμαι επίσης Καθηγητής στο Πανεπιστήμιο του Tennessee, Knoxville και επισκέπτης καθηγητής στο Πανεπιστήμιο Marquette, Wisconsin.

Επί τα τελευταία 25 χρόνια διεξάγω σημαντική επιστημονική έρευνα και ανάπτυξη και έχω διεθνή πολλά επιστημονικά προγράμματα στο Oak Ridge National Laboratory και στο Πανεπιστήμιο του Tennessee, Knoxville. Έχω δημιουργήσει και στην συνέχεια υλοποιήσει με επιτυχία πρωτότυπες και πρωτοποριακές ιδέες και μου έχει δοθεί η ευκαιρία να συμμετέχω σε πολυάριθμα και σημαντικά επιστημονικά προγράμματα. Κάποια από αυτά ήταν χρηματοδοτούμενα από το Υπουργείο Ενέργειας, ΗΠΑ και τα υπόλοιπα επιστημονικά προγράμματα από άλλους οργανισμούς.

Επίσης, τα τελευταία 25 χρόνια η επιστημονική μου έρευνα στο Πανεπιστήμιο του Tennessee και στο Oak Ridge National Laboratory περιλαμβάνει τόσο τους τομείς της θεμελιώδους αλλά και της εφαρμοσμένης έρευνας και ανάπτυξης. Και συγκεκριμένα:

- Υπερυδρόφοβες επιφάνειες.
- Επιφάνειες με κβαντικά πηγάδια και γραφένιο.
- Νανοδομημένες επιφάνειες για την αυξημένη αλληλεπίδραση τους μεταξύ ατόμων, μορίων και ηλεκτρονίων.
- Μίκρο- επιφάνειες για την αύξηση της αλληλεπίδρασης με υπέρυθρα φωτόνια.
- Νανοδόμηση επιφανειών.
- Μικρο και Νανο-μηχανικά συστήματα με τεράστια επιφάνεια σε σχέση με τον όγκο τους.

Πιστεύω ότι βρίσκομαι σε αυτό το κρίσιμο σημείο της καριέρας μου όπου μπορώ να προσφέρω σημαντικά ωφέλη στο «Πολυτεχνείο Κρήτης» και οι γνώσεις και εμπειρίες μου να έχουν αξιόλογο αντίκτυπο στην ανάπτυξη τόσο της εκπαίδευσης όσο και της επιστήμης και τεχνολογίας. Σκοπός μου είναι να εμπνεύσω και να προσφέρω όραμα στο Πολυτεχνείο Κρήτης ούτως ώστε να παρέχει άριστη εκπαίδευση στους φοιτητές, αλλά και να διεξάγει έρευνα και ερευνητικά προγράμματα που θα ωφελήσουν την κοινωνία.

Ως Πρύτανης στο «Πολυτεχνείο Κρήτης» σκοπεύω να συνεργαστώ με το Πρυτανικό Συμβούλιο, τη Σύγκλητο, τους φοιτητές και όλους τους εργαζομένους στο ίδρυμα, ούτως ώστε μαζί να αποφέρουμε σημαντικά οφέλη στην επιστήμη και να ωφελήσουμε την κοινωνία στο σύνολο της.

Αυτή η ιδέα είναι συναρπαστική για μένα και γεμάτη προκλήσεις. Ανυπομονώ να έρθω σε επαφή και να ανταλλάξω ιδέες με καθηγητές, φοιτητές και προσωπικό στο ίδρυμα και σε άλλα εκπαιδευτικά και ερευνητικά ιδρύματα.

Επισυνάπτονται τα:

- 1) Πλήρες βιογραφικό σημείωμα
- 2) Αντίγραφο του διαβατηρίου

Με εκτίμηση,

P.G. Datskos

Dr. Panagiotis Datskos
Distinguished Scientist and Group Leader
NanoSystems and Structures Group
Oak Ridge National Laboratory

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Παναγιώτης Δάτσκος του Γεωργίου

Προσωπικά στοιχεία:

Όνομα πατρός: Γεώργιος
Ημερομηνία γέννησης: 08/08/1961
Τόπος γέννησης: Βερδικούσσα Λαρίσης
Υπηκοότητα: Ελληνική/Αμερικανική
Οικογενειακή κατάσταση: Έγγαμος με τρία τέκνα

Διεύθυνση:

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Τωρινή Θέση:

2007-σήμερα Προϊστάμενος/Διευθυντής ερευνητικής ομάδας στο Oak Ridge National Laboratory του Υπουργείου Ενέργειας των ΗΠΑ σε συστήματα νανοτεχνολογίας/νανοεπιστήμης και νανο-δομών
2012 - σήμερα Διακεκριμένος Ερευνητής, Oak Ridge National Laboratory
2010- σήμερα Καθηγητής, Κέντρο Bredesen Επιστημονικής Ερευνας & Εκπαίδευσης (CIRE), Πανεπιστήμιο του Tennessee, Knoxville
2004-σήμερα Επισκέπτης Καθηγητής, Πανεπιστήμιο του Marquette, Wisconsin

Επαγγελματική Εμπειρία:

2004-2011 Ανώτατος Ερευνητής, Oak Ridge National Laboratory
2004-2010 Ερευνητής-καθηγητής, Πανεπιστήμιο του Tennessee
1999-2004 Ερευνητής-Αναπληρωτής καθηγητής, Πανεπιστήμιο του Tennessee
1997-2004 Ερευνητής Α' βαθμίδας, Oak Ridge National Laboratory
1994-1999 Ερευνητής - Επίκουρος Καθηγητής, Πανεπιστήμιο του Tennessee
1989-1994 Μεταδιδακτορικός Ερευνητής συνεργάτης, Πανεπιστήμιο του Tennessee
1985-1988 Βοηθός ερευνητής, Oak Ridge National Laboratory/Πανεπιστήμιο του Tennessee

Εξουσιοδότηση προσπέλασης σε απόρρητες πληροφορίες: Q (Υπουργείο Ενέργειας, ΗΠΑ)

Εκπαίδευση/Μόρφωση:

1988 Ph.D. στην Επιστήμη της Φυσικής, Πανεπιστήμιο του Tennessee, Knoxville, Tennessee
1983 B. S. στην Επιστήμη της Φυσικής, Πανεπιστήμιο Ιωαννίνων, Ιωάννινα, Ελλάδα

Σύνοψη Επαγγελματικής Εμπειρίας:

Ο Δρ. Δάτσκος είναι ένας διακεκριμένος ερευνητής και υπεύθυνος ομάδας συστημάτων νανοτεχνολογίας/ νανοεπιστήμης και δομών στο Oak Ridge National Laboratory. Είναι επίσης καθηγητής στο Πανεπιστήμιο του Tennessee, Knoxville και επίκουρος καθηγητής στο Πανεπιστήμιο Marquette, Wisconsin. Κατά την διάρκεια της επαγγελματικής του σταδιοδρομίας στο ORNL έχει ηγηθεί πολλών R&D προγραμμάτων καλύπτοντας ένα ευρύ φάσμα έρευνας και τεχνολογίας στην νανοκατασκευή, στα νανουλικά, συστήματα MEMS και στους μικρο-ανιχνευτές στο ORNL, εμπειρία στην οποία συμπεριλαμβάνονται προηγούμενα και τωρινά προγράμματα της DARPA. Κατέχει περισσότερα από 25 χρόνια εμπειρία στην επιστημονική έρευνα και ανάπτυξη η οποία εμπεριέχει την φυσική των μικρο- και νάνο-μηχανικών συστημάτων (MEMS/NEMS), μικρομηχανική φυσικών και χημικών αισθητήρων, την μεταφορά ηλεκτρονίων στην αέρια και υγρή φάση και ιονισμό αερίων και υγρών. Τα τωρινά του ερευνητικά ενδιαφέροντα εστιάζουν στην νανοκατασκευή και μελέτη επιφανειών, MEMS και NEMS και περιλαμβάνουν την ανάπτυξη φυσικών και χημικών MEMS/NEMS αισθητήρων χρησιμοποιώντας μικρο-προβολιακούς, μικρο-θερμιδομετρική, φασματοσκόπια και μη-ψυχόμενους MEMS IR ανιχνευτές. Έχει επιδείξει αρχηγικές ικανότητες και έχει διευθύνει διάφορες διεπιστημονικές ερευνητικές ομάδες αποτελούμενες από τεχνικό προσωπικό, μεταδιδακτορικούς συναδέλφους, μεταπτυχιακούς και προπτυχιακούς φοιτητές. Κατέχει πλήρως την ικανότητα να διαχειρίζεται και να διευθύνει προγράμματα έρευνας που διεξάγονται από ομάδες του Oak Ridge National Laboratory καθώς και άλλων ερευνητικών οργανισμών και πανεπιστημίων. Του έχει απονεμηθεί το βραβείο Discover (2000) και έχει τιμηθεί επτά φορές με το βραβείο R&D 100 που απονέμεται στις 100 καλύτερες τεχνολογίες της χρονιάς. Έχουν εκδοθεί πάνω από 86 βιβλιογραφίες του, κατέχει πάνω από 90 συνεδριακές εργασίες και παρουσιάσεις, 12 κατοχυρωμένες ευρεσιτεχνίες και περισσότερες από 6 ευρεσιτεχνίες σε εκκρεμότητα.

Ειδικότητα:

Έρευνα:

- Ηγείται ερευνητικής ομάδας στο Oak Ridge National Laboratory που ασχολείται με τη φυσική νανοδόμησης επιφανειών για μικρο-αισθητήρες, υπερ-υδρόφοβες επιφάνειες και φωτονικούς κρυστάλλους. Έχει ερευνήσει την φυσική αιωρούμενων επιφανειών με κβαντικά πηγάδια και νανοδομημένες επιφάνειες για την αύξηση της αλληλεπίδρασης μεταξύ των επιφανειών, ατόμων, μορίων και ηλεκτρονίων και μικρο-επιφάνειες για την βελτιστοποίηση της αλληλεπίδρασης των υπέρυθρων φωτονίων. Μελέτησε τη φυσική μικρο-μηχανικών (MEMS) και νάνο-μηχανικών (NEMS) συστημάτων, την νανοδόμηση επιφανειών, και MEMS/NEMS που έχουν τεράστια επιφάνεια σε αναλογία όγκου. Την τελευταία δεκαετία έχει διεξάγει σημαντική έρευνα στον τομέα των νανοδομημένων υλικών, μικρο-ηλεκτρο-μηχανικών συστημάτων (MEMS) και νανο-ηλεκτρο-μηχανικών συστημάτων (NEMS) η οποία έχει οδηγήσει σε πολλαπλές εφευρέσεις, δημοσιεύσεις και επιτεύξεις μεγάλης κλίμακας, οι οποίες σταδιακά οδήγησαν στην ανάπτυξη νέων προσεγγίσεων αναφορικά με την διάταξη, δομή και υλοποίηση συσκευών και αισθητήρων MEMS/ NEMS.
- Κατέχει εμπειρία ως επικεφαλής ερευνητής σε πολλά ερευνητικά προγράμματα στα οποία επέδειξε ουσιώδη διοικητική ικανότητα αλλά και την απαιτούμενη αποφασιστικότητα

ώστε να εξασφαλίσει τα επιδιωκόμενα αποτελέσματα καθώς και ένα παραγωγικό ερευνητικό περιβάλλον.

Διδασκαλία:

- Κατέχει δεκαπενταετή διδακτική εμπειρία τόσο σε επίπεδο προπτυχιακού όσο και σε επίπεδο μεταπτυχιακού στο Πανεπιστήμιο του Tennessee. Παράλληλα έχει διδάξει σαν επισκέπτης καθηγητής σε διάφορα Πανεπιστημιακά ιδρύματα των ΗΠΑ και έχει συμμετάσχει σε πολλές επιτροπές κρίσεις διδακτορικών διατριβών.

Ηγετική ικανότητα:

- Έχει επιδείξει δυναμική διοικητική ικανότητα καθώς και αφοσίωση στο ομαδικό πνεύμα συνεργασίας. Έχει διευθύνει πολυάριθμες ερευνητικές ομάδες και με διάφορα επιστημονικά αντικείμενα στο Oak Ridge National Laboratory καθώς και άλλα ερευνητικά προγράμματα που διεξάγονται για το Υπουργείο Ενέργειας των ΗΠΑ, και για άλλους ιδιωτικούς φορείς.

Ανάπτυξη Προγραμμάτων:

- Κατέχει την ικανότητα ανάπτυξης και διαχείρισης ερευνητικών προγραμμάτων με ομάδες από το Oak Ridge National Laboratory και από άλλους ερευνητικούς οργανισμούς και πανεπιστήμια. Την τελευταία δεκαετία διευθύνει ερευνητικά προγράμματα, τα οποία επιχορηγούνται με οικονομικούς πόρους που προέρχονται από ομοσπονδιακούς οργανισμούς και φορείς (Υπουργείου Ενέργειας των ΗΠΑ, Υπουργείου Αμύνης των ΗΠΑ, και του οργανισμού DARPA των ΗΠΑ).

Διοίκηση (επανάληψη με ηγετική ικανότητα πιο πάνω):

- Κατέχει σημαντική εμπειρία στην διοίκηση προσωπικού και στην ικανότητα αποτελεσματικής επικοινωνίας σε γραπτό και προφορικό λόγο. Τα τελευταία δέκα χρόνια έχει κατά καιρούς διευθύνει διάφορες ομάδες ερευνών, αποτελούμενες από ερευνητικό και τεχνικό προσωπικό, μεταδιδακτορικούς συναδέλφους, μεταπτυχιακούς και προπτυχιακούς φοιτητές καθώς και προσωπικό υποστήριξης της διοίκησης.

Δημοσιεύματα:

Συγγραφή ατομικών αλλά και ομαδικών εργασιών, οι οποίες ξεπερνούν τις 170 δημοσιεύσεις: εξ αυτών οι δημοσιευμένες εργασίες/ κεφάλαια υπερβαίνουν τις ογδόντα έξι (86) και οι συνεδριακές παρουσιάσεις ξεπερνούν τις ενενήντα (90).

Ευρεσιτεχνίες:

Έχει δώδεκα (12) κατοχυρωμένες ευρεσιτεχνίες στις ΗΠΑ και τουλάχιστον άλλες έξι (6) σε εκκρεμότητα κατοχύρωσης.

Βραβεία:

Του έχουν απονεμηθεί πολλά βραβεία για το ερευνητικό του έργο. Εξ αυτών τα σημαντικότερα είναι τα εξής:

- 1985 Βραβείο επιστημονικής Συμμαχίας (Πανεπιστήμιο του Tennessee, Knoxville)
- 1986 Βραβείο επιστημονικής Συμμαχίας (Πανεπιστήμιο του Tennessee, Knoxville)
- 1987 Βραβείο επιστημονικής Συμμαχίας (Πανεπιστήμιο του Tennessee, Knoxville)
- 1988 Βραβείο επιστημονικής Συμμαχίας (Πανεπιστήμιο του Tennessee, Knoxville)
- 1996 Βραβείο R&D 100 (περιοδικό R&D)
- 1998 Βραβείο R&D 100 (περιοδικό R&D)
- 1999 Βραβείο R&D 100 (περιοδικό R&D)

- 2000 Βραβείο Ανακάλυψης (περιοδικό Discover)
- 2000 Εφευρέτης της χρονιάς (UT-Battelle)
- 2000 Βραβείο Τεχνικών Επιτευγμάτων (UT-Battelle)
- 2003 Βραβείο R&D 100 (περιοδικό R&D)
- 2010 Βραβείο R&D 100 (περιοδικό R&D)
- 2011 Βραβείο R&D 100 (περιοδικό R&D)
- 2012 Βραβείο R&D 100 (περιοδικό R&D)

Δραστηριότητες:

Μέλος της Συντακτικής Επιτροπής του περιοδικού Sensors & Transducers
 Μέλος της Συντακτικής Επιτροπής του περιοδικού Open Applied Physics
 Μέλος της Συντακτικής Επιτροπής του περιοδικού Review of Scientific Instruments
 Μέλος της Συντακτικής Επιτροπής του περιοδικού Sensor Letters
 Μέλος της Συντακτικής Επιτροπής του περιοδικού Microelectronic Engineering
 Μέλος της Συντακτικής Επιτροπής του περιοδικού Dataset Papers in Optics

Υπεύθυνος αξιολόγησης εργασιών για διεθνή επιστημονικά περιοδικά:

Physics D, Applied Physics
 Applied Physics Letters
 Review of Scientific Instruments
 Journal of Micromechanics and Micro engineering
 Measurement Science and Technology
 IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control
 IEEE/OSA Journal of Light wave Technology
 Optical Engineering
 Open Applied Physics Journal
 Nature

Μέλος κριτικών επιτροπών ερευνητικών προτάσεων:

Υπουργείο Ενέργειας (DOE), ΗΠΑ
 Υπουργείο Άμυνας (DOD), ΗΠΑ
 Εθνικό Ίδρυμα Ερευνών (NSF), ΗΠΑ

Ερευνητικό Υπόβαθρο:

Το μεγαλύτερο μέρος απο το ερευνητικό έργο έχει διεξαχθεί και ολοκληρωθεί στο Oak Ridge National Laboratory και στο Πανεπιστήμιο του Tennessee, Knoxville:

- **Μεμβράνες με πάχος ενός μόνο ατόμου:** Δημιούργησε νέες μεθόδους για την ανάπτυξη φύλλων γραφενίου και διερεύνησε την ηλεκτρική και θερμική αγωγιμότητα.
- **Νανοδομημένα υλικά με χαμηλή επιφανειακή ενέργεια:** Ανέπτυξε νέες τάξεις νανοδομημένων υλικών με χαρακτηριστικά και ιδιότητες που περιλαμβάνουν υπερ-υδροφοβική συμπεριφορά, αντι-πάγωση, αντι-διάβρωση, και προστασία απο μικροοργανισμούς.
- **Φυσική αιωρούμενων επιφανειών με κβαντικά πηγάδια και νανοδόμηση επιφανειών:** Ερεύνησε και ανέπτυξε εφαρμογές σε αιωρούμενες επιφάνειες με κβαντικά πηγάδια και νανοδομημένες επιφάνειες για την αύξηση της αλληλεπίδρασης μεταξύ των επιφανειών, ατόμων, μορίων και ηλεκτρονίων καθώς και μικρο-επιφάνειες για την βελτιστοποίηση της αλληλεπίδρασης των υπέρυθρων φωτονίων.

- **Μίκρο-ηλεκτρο-μηχανικά συστήματα (MEMS) και νάνο-ηλεκτρο-μηχανικά συστημάτων (NEMS) για εφαρμογές στην νάνο-ηλεκτρονική, μικρο-φωτονική και σε αισθητήρες:** Ερεύνησε και ανέπτυξε συστήματα MEMS και NEMS με εφαρμογές σε υψηλής ταχύτητας νάνο-ηλεκτρονικών τρανζίστορ (με μικρό αριθμό ηλεκτρονίων), αιωρούμενους φωτονικούς κρυστάλλους, και σε φυσικούς και χημικούς αισθητήρες.
- **Μίκρο-πρόβολους για φυσικούς και χημικούς αισθητήρες:** Ερεύνησε και εφάρμοσε την χρήση μίκρο-προβόλων για χημικούς αισθητήρες και την ανίχνευση των υπεριώδων, ορατών, και υπέρυθρων φωτονίων. Μελέτησε και προήγαγε την αλληλεπίδραση των μίκρο-μηχανικών δομών με υπέρυθρα φωτόνια και ανέπτυξε μίκρο-προβολικούς θερμικούς ανιχνευτές. Μελέτησε και εφάρμοσε την ηλεκτρονική πίεση που προκαλείται από φωτόνια σε ημιαγωγούς και κβαντικές επιφάνειες. Ερεύνησε την αλληλεπίδραση μορίων και ατόμων με μίκρο-μηχανικές θερμικές επιφάνειες και ανέπτυξε καινοτόμες χημικές προσεγγίσεις.
- **Μικροσκοπία με tunneling φωτονίων:** Μελέτησε και εξέλιξε μικροσκοπία με tunneling φωτονίων (PSTM) για απεικόνιση μικρών ιογενών σωματιδίων (όπως T4 βακτηριοφάγους ιούς).
- **Πολύ-φωτονικές διαδικασίες σε συμπυκνωμένη ύλη:** Μελέτησε τους μηχανισμούς και την δυναμική του ιονισμού μέσω πολύ-φωτονικών διαδικασιών με λέιζερ καθώς και την διαδικασία διέγερσης σε συμπυκνωμένη ύλη που προκαλείται από την χρήση λέιζερ. Ανέπτυξε μια τεχνική για τον προσδιορισμό του ιονισμού μορίων σε συμπυκνωμένη ύλη χρησιμοποιώντας πολύ-φωτονικό ιονισμό. Σχεδίασε και κατασκεύασε συσκευές για την μελέτη με χρήση λέιζερ του ιονισμού και φθορισμού στοιχείων σε υψηλή θερμοκρασία, υψηλή πίεση και υψηλά ηλεκτρικά πεδία.
- **«Γρήγορα» μείγματα αερίων για χρήση σε ανιχνευτές σωματιδίων:** Ανακάλυψε και βελτίωσε διμερή και τριμερή μείγματα αερίων τα οποία βελτιστοποίησαν την λειτουργία ανίχνευσης, ταυτοποίησης και εντοπισμού ραδιοενεργών σωματιδίων. Η σύνθεση αυτών των αερίων μειγμάτων βασιζόταν στην γνώση των βασικών ιδιοτήτων κίνησης και διασκόρπισης ηλεκτρονίων σε αέρια. Ανακάλυψε νέα διηλεκτρικά αέρια βασιζόμενος στη βελτιστοποίηση των ηλεκτρονίων και πυκνότητας ιόντων, και της ενέργειά τους σε αυτά τα αέρια. Ερεύνησε το ρόλο της προσκόλλησης ηλεκτρονίων στην επιλογή διηλεκτρικών μέσων και τα εφάρμοσε σε ανιχνευτές σωματιδίων. Διερεύνησε επίσης το ρόλο της διασκόρπισης ηλεκτρονίων με χαμηλές ενέργειες όσον αφορά την επιλογή των φερόντων αερίων για γρήγορα μείγματα για εφαρμογή σε ανιχνευτές ραδιοενεργών σωματιδίων.
- **Φώτο-απόσπαση από αρνητικά ιόντα:** Αναπτύξε τεχνικές για να διερευνήσει την διαδικασία της φώτο-απόσπασης από αρνητικά ιόντα καθώς και την δυναμική και ενεργετική εξάρτηση της διαδικασίας από την ενέργεια των φωτονίων. Μέτρησε την φώτο-απόσπαση ως συνάρτηση της ενέργειας των φωτονίων για το εξα-φθόρο-βενζόλιο (C_6F_6) σε φέρον αέριο του τέτρα-μεθύλιο-σιλάνιου $[Si(CH_4)_4]$ για εφαρμογή σε διηλεκτρικά μέσα.
- **Απόσπαση ηλεκτρονίων από αρνητικά ιόντα:** Ανέπτυξε νέες τεχνικές για τη μελέτη της δυναμικής και την εξάρτηση από τη θερμοκρασία και την πυκνότητα των φερόντων αερίων κατά την διαδικασία απόσπασης ηλεκτρονίων. Μελέτησε την απόσπαση ηλεκτρονίων από τα ανιόντα εξα-φθόρο-βενζόλιο (C_6F_6), κύκλο-εξα-φθόρο-βουτένιο ($c-C_4F_6$) και εξα-φθοριούχο θείο (SF_6) μέσα σε αέριο του N_2 ως συνάρτηση της θερμοκρασίας και της πυκνότητας αερίων για εφαρμογή σε διηλεκτρικά μέσα.

- **Σμήνη ηλεκτρονίων και κίνηση ηλεκτρονίων σε υψηλές πιέσεις:** Διερεύνησε και εφάρμοσε τον μηχανισμό προσκόλλησης και κίνησης ηλεκτρονίων σε αέρια ως συνάρτηση της πίεσης. Μελέτησε την επίδραση της φυσικής κατάστασης (πυκνότητα και θερμοκρασία) φερόντων αερίων για την κίνηση ηλεκτρονίων και δημιουργία αρνητικών ιόντων. Διενέργησε αναλύσεις σμήνων ηλεκτρονίων για να καθορίσει τη δυναμική μεταφορά και την ενεργό διατομή προσκόλλησης ηλεκτρονίων σε άτομα ή μόρια.

Επιτεύγματα:

- **Βραβείο R&D 100 για μη-γραμμικούς ταλαντωτές MEMS.** Το 2010 τιμήθηκε με βραβείο R&D 100 για την μελέτη και δημιουργία μη-γραμμικών ταλαντωτών χρησιμοποιώντας μικρο-προβόλους MEMS.
- **Νάνο-μηχανική μεταφορά ηλεκτρονίων.** Το 2009 εφηύρε ένα σύστημα που βασίζεται στη μεταφορά ηλεκτρονίων σε αιωρούμενες νάνο-επιφάνειες. Αυτό είναι το μηχανικό ανάλογο του φαινομένου Aharonov-Bohm.
- **Μίκρο- και νάνο-μηχανικά γυροσκόπια.** Το 2009 εφηύρε γυροσκόπια NEMS που μπορούν να χρησιμοποιηθούν σε συσκευές GPS ή αδρανειακές μονάδες πλοηγήσεις.
- **Βραβείο R&D 100 για την οπτική μέτρηση μεγάλων συστοιχιών σύνθετων μικρο-προβόλων MEMS.** Το 2003 τιμήθηκε με βραβείο R&D 100 για την δημιουργία μίας μη-ψυχόμενης υπέρυθρης κάμερας βασισμένη σε σύνθετους μικρο-προβόλους με οπτική μέτρηση.
- **Ανεπτύξε τεχνικές για να μετρήσει εξαιρετικά μικρές μάζες χρησιμοποιώντας MEMS.** Το 2003 χρησιμοποίησε σύνθετους μικρο-προβόλους και μετρήσε με επιτυχία αλλαγές στη μάζα μέχρι κάτω από 10^{-15} γραμμάρια.
- **Ανιχνευτής εκρηκτικών με χρήση μικρο-προβόλων.** Το 2000 του απενεμήθη βραβείο Ανακάλυψης (Discover magazine) για την ανάπτυξη ενός μικρο-μηχανικού ανιχνευτή TNT.
- **Βραβείο R&D 100 για μη-ψυχόμενο κβαντικό ανιχνευτή για υπέρυθρα φωτόνια.** Το 1999 τιμήθηκε με βραβείο R&D 100 για την ανάπτυξη ενός μικρο-μηχανικού ανιχνευτή με χρήση κβαντικών πηγαδιών MEMS.
- **Νέα κατηγορία μικρο-θερμικής φασματοσκοπίας και χημικών ανιχνευτών.** Το 1998 ήταν αποδέκτης βραβείου R&D 100 για την ανάπτυξη ενός μικρο-θερμικού φασματομέτρου βασισμένο σε μικρο-προβολικούς θερμικούς ανιχνευτές.
- **Βραβείο R&D 100 για καινοτόμους χημικούς αισθητήρες.** Το 1996 τιμήθηκε με βραβείο R&D 100 για ένα ανιχνευτή υδραργύρου βασισμένο σε μικρο-προβόλους.
- **Βραβείο R&D 100 για μη-ψυχόμενους θερμικούς ανιχνευτές.** Το 1996 τιμήθηκε με βραβείο R&D 100 για ένα αισθητήρα θερμοκρασίας χρησιμοποιώντας μικρο-προβόλους.
- **Μετρήσεις ιονισμού μορίων συμπυκνωμένη ύλη.** Ανέπτυξε νέες πειραματικές τεχνικές για τη μέτρηση του ιονισμού μορίων μέσα σε συμπυκνωμένη ύλη.
- **Ανέπτυξε νέες πειραματικές τεχνικές για τη μελέτη της απόσπασης ηλεκτρονίων από αρνητικά ιόντα σε αέρια.** Μελέτησε και εφάρμοσε την απόσπαση ηλεκτρονίων από τα ανιόντα εξα-φθόρο-βενζόλιο (C_6F_6), κύκλο-εξα-φθόρο-βουτένιο ($c-C_4F_6$) και εξα-φθοριούχο θείο (SF_6).

- Ανέπτυξε νέες πειραματικές μεθόδους για τη μέτρηση ενεργής διατομής της φώτο-απόσπασης από αρνητικά ιόντα σε αέρια. Μέτρησε την φώτο-απόσπαση ως συνάρτηση της ενέργειας των φωτονίων για το εξα-φθόρο-βενζόλιο (C_6F_6) σε φέρων αέριο του τέτρα-μεθύλιο-σιλάνιου [$Si(CH_3)_4$].

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71. P. G. Datskos, N. Lavrik, M. J. Sepaniak, P. Dutta, and P. J. Chapman, "The Nanomechanical Chemical Sensors Based on Functionalized MEMS Arrays," Unmanned/Unattended Sensors and Sensor Networks III, *Proceedings of SPIE Vol. 6394* (2006).
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74. P. G. Datskos, "Cantilever Arrays as a Platform for Chemical and Physical Sensors," Department of Chemistry, University of Tennessee (August 2007). **(seminar)**
75. P. G. Datskos, "MEMS and NEMS Technologies for Sensor Applications," Security and Defense Symposium, SPIE Orlando, March 19, 2008 **(invited paper)**.
76. P.G. Datskos, N.V. Lavrik, M J. Sepaniak, "Cantilever Arrays as a Platform For Chemical And Physical Sensors," 34th international conference on Micro-and Nano-Engineering. Micro-and Nano-Engineering, Athens, Greece Sep. 15-18, 2008. **(invited paper)**
77. D. Grbovic, S. Rajic, N. V. Lavrik, and P. G. Datskos, "Progress with MEMS based UGS (IR/THz)," in *Unattended Ground, Sea, and Air Sensor Technologies and Applications X*, SPIE, **6963**, 696317-1-696317-11 (2008).
78. P.G. Datskos, "Physical and Chemical Sensing Based on Micro- and Nanotechnologies," SPIE Orlando, April 13-16, 2009. **(keynote presentation)**
79. P. G. Datskos, "Nano/Micro-Electro-Mechanical Systems (NEMS/MEMS): Cantilevers," Physics Dept., University of Crete, Greece, (April 28 2010). **(colloquium)**

80. S. R. Hunter, J. R. Patton, M. J. Sepaniak, P.G. Datskos, and D. B. Smith, "Distributed Optical Microsensors for Hydrogen Leak Detection and Related Applications," *Proceedings of SPIE*, **7693**, 769307-1 (2010).
81. P.G. Datskos, "Future Trends in MEMS and NEMS," SPIE Orlando, April 4-9, 2010. **(invited paper)**
82. P.G. Datskos and N.V. Lavrik, "Nonlinear Resonators for Ultrasensitive Mass Detection," *SPIE Newsroom*, June (2010).
83. P.G. Datskos, S. Rajic, N. Lavrik, "Nano/Micro-Electro-Mechanical Systems (NEMS/MEMS): Cantilevers," *Ocean Optics XX*, Anchorage AL 2010. **(invited paper)**
84. P.G. Datskos, N.V. Lavrik, J. Tobin, and L.T. Bowland, "Detection of Electromagnetic Waves Using MEMS Antennas," *Proceedings of SPIE Unattended Ground, Sea, and Air Sensor Technologies and Applications XIII*, SPIE, **8046**, 80460J-1 (2011).
85. M. E. Morales-Rodríguez, L. R. Senesac, T. Thundat, M. K. Rafailov and P. G. Datskos, "Standoff imaging of chemicals using IR spectroscopy," *Proceedings of SPIE Micro- and Nanotechnology Sensors, Systems, and Applications III*, SPIE, **8031**, 80312D-1 (2011). **(invited paper)**
86. S. R. Hunter, N. V. Lavrik, T. Bannuru, S. Mostafa, S. Rajic and P. G. Datskos, "Development of MEMS based pyroelectric thermal energy harvesters," **8035**, 80350V-1 (2011).
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88. Scott R. Hunter, Nickolay V. Lavrik, Salwa Mostafa, Slo Rajic and Panos G. Datskos, "Review of Pyroelectric Thermal Energy Harvesting and New MEMS Based Resonant Energy Conversion Techniques," *Proceedings of SPIE Energy Harvesting and Storage: Materials, Devices, and Applications II*, SPIE, Vol. 8377, 8770D (2012).
89. S. Rajic and P. Datskos "Small arms mini-fire control system: fiber-optic barrel deflection sensor," SPIE, SPIE Baltimore, MD April 23-27 (2012).
90. P.G. Datskos, "Nanocantilevers Technology", 4th International, Conference Smart Materials, Structures and Systems Montecatini Terme, Tuscany, Italy, June 10 -14 (2012).
91. Datskos, P., N. Lavrik, J. Tobin, L.T. Bowland, "Using micro-electro-mechanical systems (MEMS) as small antennas," *Future of Instrumentation International Workshop IEEE*, 978-1-4673-2482, 1 (2012).

CURRICULUM VITAE
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Oak Ridge, TN 37831-6054
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Current Position:

2007 - present Group Leader, Nanosystems and Structures Group, Oak Ridge Nat'l Lab
2012 - present Distinguished Scientist, Oak Ridge National Laboratory
2010 - present Professor, Bredesen Center for Interdisciplinary Research and Graduate
 Education (CIRE), University of Tennessee
2004 - present Adjunct Professor, Marquette University

Experience:

2004 - 2011 Senior Scientist, Oak Ridge National Laboratory
2004 - 2010 Research Professor, University of Tennessee
1999 - 2004 Research Associate Professor, University of Tennessee
1997 - 2004 Research Scientist, Oak Ridge National Laboratory
1994 - 1999 Research Assistant Professor, University of Tennessee
1989 - 1994 Postdoctoral Research Associate, University of Tennessee
1985 - 1988 Research Assistant, Oak Ridge National Laboratory/ University of Tennessee

Security Clearance: Q (U.S. DoE)

Education:

1988 Ph.D. in Physics, University of Tennessee, Knoxville, Tennessee
1983 B. S. in Physics, University of Ioannina, Ioannina, Greece

Summary of Experience:

Dr. Panos Datskos is a distinguished scientist and the group leader of the NanoSystems and Structures Group at Oak Ridge National Laboratory. He is also a Professor at the University of Tennessee and an Adjunct Professor at Marquette University. During his tenure at ORNL he led R&D programs covering a broad range of science and technologies in nanomanufacturing, nanomaterials, MEMS and micro sensors at Oak Ridge National Laboratory, including prior and current DARPA programs. He has over 25 years experience in scientific research and development that involve the physics of nanomaterials, micro and nanomechanical (MEMS/NEMS) systems, micro-mechanical physical and chemical sensors, the physics of electron transport and ionization in gases and liquids. His current research interests focus on nanostructured surfaces, MEMS and NEMS and involve the development of physical and chemical MEMS/NEMS sensors using microcantilevers, microcalorimetric spectroscopy, and uncooled MEMS infrared (IR) detectors. He has demonstrated leadership strengths and has led multi-disciplinary research teams, and managed research teams consisting of senior and junior

technical staff, postdoctoral fellows, graduate and undergraduate students. He has demonstrated the ability to develop and manage research programs with teams from ORNL and other research organizations and universities. He has received a 2000 Discover award, and seven coveted R&D 100 Awards, which is given to the 100 best technologies of the year. He has 86 open literature publications, and 90 conference proceedings and presentations, 12 issued patents and 6 pending patents.

Publications:

Authored or co-authored over 170 publications: Journals/Book chapters > 86; Conference Proceedings/Presentations > 90

U.S. Patents:

Twelve issued U.S. and six pending patents applications

Awards:

1985 Science Alliance Award (UTK)
1986 Science Alliance Award (UTK)
1987 Science Alliance Award (UTK)
1988 Science Alliance Award (UTK)
1996 R&D 100 Award (R&D magazine)
1998 R&D 100 Award (R&D magazine)
1999 R&D 100 Award (R&D magazine)
2000 Discover Award (Discover Magazine)
2000 Inventor of the year (UT-Battelle)
2000 Technical Accomplishment Award (UT-Battelle)
2003 R&D 100 Award (R&D magazine)
2010 R&D 100 Award (R&D magazine)
2011 R&D 100 Award (R&D magazine)
2012 R&D 100 Award (R&D magazine)

Activities:

Member of Editorial Board of Sensors & Transducers Journal
Member of Editorial Board of Open Applied Physics Journal
Member of Editorial Board of Review of Scientific Instruments
Member of the Editorial Board of Microelectronic Engineering
Member of the Editorial Board of Dataset Papers in Optics

Reviewer for Peer Reviewed Journals:

Journal of Physics D, Applied Physics
Applied Physics Letters
Review of Scientific Instruments
Journal of Micromechanics and Microengineering
Measurement Science and Technology
IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control
IEEE/OSA Journal of Lightwave Technology
Optical Engineering
Open Applied Physics Journal

Nature

Research Background:

The research work has been carried out at Oak Ridge National Laboratory and the University of Tennessee:

- **Atomic Thickness Membranes:** Developed new methods to grow graphene layers and investigated the dependence of electrical and thermal conductivity on defect concentration.
- **Nanostructured Materials with Low Surface Energy:** Developed new classes of nanostructured materials with characteristics and properties that include superhydrophobic behavior, anti-icing, anti-corrosion, and anti-fouling.
- **Micro-Electro-Mechanical Systems (MEMS and Nano-Electro-Mechanical Systems (NEMS) for nano-electronic and sensing applications:** Investigated and developed MEMS and NEMS with applications to high-speed nano-electronic single-electron transistors, and physical and chemical sensors.
- **Microcantilevers for Physical and Chemical Sensing:** Investigated the use of microcantilevers for chemical sensing and detection of infrared, visible and ultraviolet radiation. Studied the interaction of infrared photons with micromechanical structures and developed microcantilever thermal detectors. Studied the photo-induced (electronic stress in semiconductor cantilevers, and quantum well cantilevers. Investigated the adsorption of molecules on the surface of micromechanical thermal and developed novel chemical detection approaches.
- **Photon Scanning Tunneling Microscopy:** Developed a photon scanning tunneling microscope (PSTM) to image small viral particles (such as T4 Bacteriophages).
- **Multiphoton Processes in Dense Media:** Studied the mechanisms and energetics of laser induced multiphoton ionization and excitation processes in dense gases. Developed a technique for the determination of the ionization threshold of molecules in dense media, using multiphoton ionization. Designed and built laser ionization and fluorescence cells for high temperature, high pressure, and high electric fields.
- **Fast Gas Mixtures for Gas-Filled Particle Detectors:** Improved binary and ternary gas mixtures were discovered which optimized counter operation for particle detection, identification and localization. The composition of these gas mixtures was based on knowledge of their basic electron scattering properties. Identified and tailored new gas dielectrics by optimization of the electron and ion densities and their energies in these gases. Investigated the role of electron attachment in the choice of unitary gas dielectrics or electronegative components in dielectric gas mixtures, and also investigated the role of electron scattering at low energies in the choice of buffer gases for such mixtures
- **Photodetachment of Negative Ions:** Developed techniques to investigate the energetics, dynamics and dependence on photon energy of photodetachment processes. Measured the photodetachment cross section as a function of photon energy for hexafluorobenzene (C_6F_6) in a buffer gas of tetramethylsilane [$Si(CH_3)_4$].
- **Electron Detachment from Negative Ions:** Developed a new technique to study the energetics, dynamics and dependence on temperature and gas number density of electron detachment processes. Studied the electron detachment from hexafluorobenzene (C_6F_6), hexafluorobutene ($c-C_4F_6$) and sulfur hexafluoride (SF_6) anions in a buffer gas of N_2 as a function of temperature and gas number density.
- **High Pressure Electron Swarm and Electron Drift Studies:** Investigated the electron

attachment mechanism in gases from the low to the high-pressure regime. Studied the effect of the nature and state (density and temperature) of the medium on electron motion and negative ion formation in gases. Performed computer analyses of electron swarm and electron drift data to determine the momentum-transfer and electron attachment cross-sections in gases.

Accomplishments:

- R&D 100 Award for nonlinear MEMS oscillators. In 2010 he received an R&D 100 Award for the study and development of nonlinear oscillators using state-of-the art MEMS cantilevers.
- Micro and nanomechanical gyroscopes. In 2009 he invented a NEMS gyroscope that can be used in GPS devices or inertial navigations units.
- R&D 100 Award for optical readout for large arrays of bimaterial MEMS cantilevers. In 2003 he received an R&D 100 award for the development of an uncooled infrared camera with optical readout based on bimaterial cantilevers.
- Developed techniques to measure extremely small masses using MEMS. In 2003 he successfully measured femtogram mass changes using bimaterial microcantilevers.
- Explosive detection using microcantilevers. In 2000 he was the recipient a Discover Award for the development of a micromechanical TNT detector.
- R&D 100 Award for uncooled infrared quantum detector based on MEMS. In 1999 he received an R&D 100 Award for the development of a micromechanical quantum detector.
- New class of photomechanical chemical detectors based on microcantilever thermal detectors and microcalorimetric spectroscopy. In 1998 he was recipient of an R&D 100 Award for the development of a microcalorimetric spectrometer.
- R&D 100 Award for novel chemical sensors based on microcantilevers. In 1996 he received an R&D 100 Award for a microcantilever mercury vapor detector.
- R&D 100 Award for microcantilever thermal detectors for uncooled IR imaging and temperature sensing. In 1996 he received an R&D 100 award for a microcantilever temperature sensor.
- Ionization measurements of molecules in dense media. Developed new experimental techniques for the measurement of the ionization threshold of molecules in dense media.
- Development of new experimental techniques for study of electron detachment from negative ions in gases.
- Development of new experimental techniques for the measurement of photodetachment cross-sections from negative ions in gaseous media.

Patents:

1. "Chemical Detection Using Calorimetric Spectroscopy," U.S. Patent: 5,923,421 (1999).
2. "Uncooled Infrared Photon Detector and Multicolor Infrared Detection Using Micro-Opto-Mechanical Sensors," U.S. Patent: 5,977,544 (1999).
3. "Non-contact Passive Temperature Measuring System and Method of Operation Using Micro-Mechanical Sensors," U.S. Patent: 6,050,722 (2000).
4. "Method Using Photo-induced and Thermal Bending of MEMS Sensors" U.S. Patent: 6,312,959 (2001).
5. "Photo-induced Micro-Mechanical Optical Switch," U.S. Patent: 6,385,363 (2002).

6. "Apparatus and Method for Detecting Electromagnetic Radiation Using Electron Photoemission in a Micromechanical Sensor," U.S. Patent: 6,444,972 (2002).
7. "Integrated Optical Interrogation of Micro-Structures," U.S. Patent: 6,525,307 (2003).
8. "Acoustic Sensors Using Microstructures Tunable with Energy Other than Acoustic Energy," U.S. Patent: 6,651,504 (2003).
9. "Response Microcantilever Thermal Detector," U.S. Patent: 6,805,839 (2004).
10. "Acoustic Sensors Using Microstructures Tunable with Energy Other than Acoustic Energy" U.S. Patent: 6,901,802 (2005).
11. "Detection of Electromagnetic Radiation Using Micromechanical Multiple Quantum Wells Structures" U.S. Patent: 7,244,959 (2007).
12. "Electron/Hole Transport-Based NEMS Gyro and Devices Using the Same" U.S. Patent: 7,552,636 (2009).
13. "MEMS Based Pyroelectric Thermal Energy Harvester," (U.S. Patent Application: 20120056504).
14. "Pulsed Photothermal Phase Transformation Control For Titanium Oxide Structures And Reversible Bandgap Shift For Solar Absorption," (U.S. Patent Application: 20120073640).
15. "Nano-Mechanical Electric and Electromagnetic Field Sensor," (U.S. Patent Application: 20120206609).
16. "Nonlinear Nanomechanical Oscillators For Ultrasensitive Inertial Detection," (U.S. Patent Application: 20120206594).
17. "High Quality Large Scale Single and Multilayer Graphene Production by Chemical Vapor Deposition," (U.S. Patent Application: 13/734,823).
18. "Rapid Response Microsensor for Hydrogen Detection Using Responsive Nanostructured Films," (pending).

Publications / Journals:

1. P. G. Datskos and L. G. Christophorou, "Variation of the Electron Attachment to $n\text{-C}_4\text{F}_{10}$ with Temperature," *J. Chem. Phys.* **86**, 1982 (1987).
2. P. G. Datskos and L. G. Christophorou, "Variation with Temperature of the Electron Attachment to SO_2F_2 ," *J. Chem. Phys.* **90**, 2626 (1988).
3. H. Faidas, L. G. Christophorou, P. G. Datskos and D. L. McCorkle, "The Ionization Threshold of $\text{N,N,N}^1,\text{N}^1$ - Tetramethyl-p-phenylenediamine in Dense Fluid Ethane; Effects of Fluid Density and Temperature," *J. Chem. Phys.* **90**, 6619-6626 (1989).
4. P. G. Datskos L.G. Christophorou, and J. G. Carter, "Temperature-Enhanced Electron Attachment to CH_3Cl ," *Chem. Phys. Lett.* **168**, 324 (1990).
5. L. G. Christophorou, P. G. Datskos, and J. G. Carter, "Gases of Possible Interest to SCC Muon Detectors," *Nucl. Instr. Meth. Phys. Res. A* **309**, 160 (1991).
6. P. G. Datskos, L. G. Christophorou, and J. G. Carter, "Effect of Vibrational Excitation on Electron Transport in Gases," *Chem. Phys. Lett.* **186**, 11 (1991).
7. P. G. Datskos, L. G. Christophorou, and J. G. Carter, "Ionization Coefficients in Selected Gas Mixtures of Interest to Particle Detectors," *J. Appl. Phys.* **71**, 1 (1992).
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11. P. G. Datskos, L. G. Christophorou, and J. G. Carter, "Temperature-Enhanced Electron Detachment from C₆F₆⁻ Negative Ions," *J. Chem Phys.* **98**, 7875 (1993).
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14. L. G. Christophorou, P. G. Datskos, and H. Faidas, "Photodetachment in the Gaseous, Liquid and Solid States of Matter," *J. Chem. Phys.* **101**, 6728 (1994).
15. L. G. Christophorou, L. A. Pinnaduwege, and P. G. Datskos, "Electron Attachment to Excited Molecules," in "Linking the Gaseous and Condensed Phases of Matter: The Slow Electrons and Its Interactions," L. G. Christophorou, E. Illenberger, and W. F. Schmidt (Eds.) (Plenum Press, New York, 1994).
16. P. G. Datskos, J. G. Carter, and L. G. Christophorou, "Photodetachment of SF₆⁻," *Chem. Phys. Lett.* **239**, 38 (1995).
17. L. G. Christophorou, and P. G. Datskos, "Effect of Temperature on the Formation and Autodestruction of Parent Anions," *Int. J. Mass Spectr. Ion Proc.* **149/150**, 59 (1995).
18. L. A. Pinnaduwege and P. G. Datskos, "A Novel Technique for Real Time Monitoring of Electron Attachment to Laser Excited Molecules: Measurements on ArF-Excimer-Laser Irradiated Nitric Oxide," *J. Chem. Phys.* **104**, 8382 (1996).
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23. L. A. Pinnaduwege and P. G. Datskos, "Electron Attachment to Excited States of Silane: Implications for Plasma Processing Discharges," *J. Appl. Phys.* **81**, 7715 (1997).
24. P. G. Datskos, C. Tav, I. Sauers, and L. A. Pinnaduwege, "Electron Attachment to Vibrationally Excited Trichlorotrifluoroethane (1,1,2-C₂Cl₃F₃)," *J. Phys. D: Appl. Phys.* **30**, 2596 (1997).
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26. P. G. Datskos, S. Rajic, and I. Datskou, "Photo-induced and Thermal Stress in Silicon Microcantilevers," *Appl. Phys. Lett.* **73**, 2319 (1998).
27. C. Tav, P. G. Datskos, and L. A. Pinnaduwege, "Electron Attachment to Boron Trichloride," *J. Appl. Phys.* **84**, 5805 (1998).
28. P. G. Datskos, and I. Sauers, "Detection of 2-mercaptoethanol Using Microcantilevers," *Sensors and Actuators B* **61**, 75 (2000).
29. P. G. Datskos, S. Rajic and I. Datskou, "Detection of Infrared Photons Using the Electronic Stress in Metal-Semiconductor Cantilever Interfaces," *Ultramicroscopy* **82**, 49 (2000).

30. J. Headrick, M. Sepaniak, S. Alexandratos, and P. G. Datskos, "Chelating Scintillation Fibers for Measurements of ^{137}Cs ," *Anal. Chem.*, **72**, 1994 (2000).
31. T. Betts, C. Tipple, M. Sepaniak, and P. G. Datskos, "Selectivity of Chemical Sensors Based on Micro-Cantilevers Coated with Polymeric Films," *Anal. Chim. Acta*, **422**, 89 (2000).
32. B. C. Fagan, C. A. Tipple, Z. Xue, M. J. Sepaniak, P. G. Datskos, "Modification of Micro-Cantilever Sensors with Sol-Gels to Enhance Performance and Immobilize Chemically Selective Phases," *Talanta*, **53**, 599 (2000).
33. M. J. Sepaniak, N. V. Lavrik, C. A. Tipple, and P. G. Datskos, "Hybrid Nanostructured Microcantilevers for Enhanced Chemimechanical Transduction and SERS", *Micro Total Analysis Systems*, J.M Ramsey and A. van den Berg, Eds, Kluwer Academic Publishers, London, 450-452 (2001).
34. P. G. Datskos, S. Rajic, L. R. Senesac and I. Datskou, "Fabrication of Quantum Well Microcantilever Photon Detectors," *Ultramicroscopy*, **86**, 191 (2001).
35. N. Lavrik, C. Tipple, P. Datskos, and M. Sepaniak, "Enhanced Chemi-Mechanical Transduction at Nanostructured Interfaces," *Chemical Physics Letters*, **336**, 371 (2001).
36. N. V. Lavrik, C.A. Tipple, P.G. Datskos, M.J. Sepaniak, "Gold Nano-Structures for Transduction of Biomolecular Interactions into Micrometer Scale Movement," *Biomedical Microdevices*, **3**, 35 (2001).
37. P. G. Datskos, and M. Sepaniak, C.A. Tipple, and N. Lavrik, "Photomechanical Chemical "Microsensors," *Sensors and Actuators B*, **76**, 393 (2001).
38. P. G. Datskos, S. Rajic, L.R. Senesac, I. Datskou, M.S. Sepaniak, N. Lavrik, and C.A. Tipple, "Chemical Detection Based on Adsorption-Induced and Photo-Induced Stresses in MEMS Devices," *Journal of Vacuum Science and Technology B*, **19**, 1173 (2001).
39. P. G. Datskos, and T.G. Thundat "Nanocantilever Signal Transduction Using Electron Transfer," *Journal of Nanoscience and Nanotechnology*, **2**, 369 (2002).
40. C. A. Tipple, N.V. Lavrik, M. Culha, J. Headrick, P.G. Datskos, and M.J. Sepaniak "Nanostructured Microcantilevers With Functionalized Cyclodextrin Receptor Phases Self-Assembled Monolayers and Vapor Deposited Films," *Analytical Chemistry*, **74**, 3118 (2002).
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46. P. Dutta, C. A. Tipple, N. V. Lavrik, P. G. Datskos, O. Hofstetter, and M. J. Sepaniak, "Enantioselective Sensors Based on Antibody-Mediated Nanomechanics," *Analytical Chemistry*, **75**, 2342 (2003).
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