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Fall 2011

The Department of Electrical and Computer Engineering

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The Department of Electrical and Computer Engineering

Calendar of Events

Centennial Distinguished Speaker Colloquia Series
March 11, 2011
April 8, 2011

Eta Kappa Nu Inductions
April 14, 2011
7:30 pm

Graduate Commencement
May 7, 2011

Undergraduate Commencement
May 8, 2011

UD Reunion Weekend '11
June 10-12, 2011

Centennial Celebration Kickoff
June 11, 2011

Pre-Engineering Camp
June 24-26, 2011

Women In Engineering Summer Camp
July 10-15, 2011

Summer Graduation
August 8, 2011
(No Ceremony)

Fall Classes Begin
August 24, 2011



Chair's Corner

I am delighted to be part of this special year of celebration in our department history. Yes, we are completing 100 years in May and starting our 101st year!! Electrical Engineering was one of the first to be started in 1910, in the St. Joseph's Hall. The first batch of Electrical Engineering students enrolled in 1911. I am sure if we look back at the history, there will be some amazing stories. How do we learn the history of our department? Our living Alumni can be the best ones to share with us on our history and how things were over the 100 year history! On behalf of the department faculty, staff, and students, I would like to request our Alumni to write to us on how things were during their college days, special stories about teachers, classmates, accomplishments of our alumni, funny incidents, etc. It will be nice to see some pictures of our alumni, former faculty, and staff. Can we make this happen? Only time will tell. My hope is to create a Centennial Celebration book, based on the alumni info, pictures, faculty and staff, historical archives, etc. I hope we can connect with our

alumni on this special project. Throughout 2011, we plan to have distinguished speaker series colloquia, as part of our Centennial Celebration. We kicked off the distinguished speaker series in March with three world-class speakers. It will be nice to have one of the colloquia based solely on our accomplished alumni! If you can nominate any of our alumni for this colloquia, please do let us know. Officially, the School of Engineering has plans for Centennial Celebrations from June 2011, starting with the Reunion weekend! Our Centennial Celebration also coincides with Father William Chaminade's 250th birthday! Celebration of Father Chaminade's 250th birthday is planned for the entire 2011-2012 academic year. As we celebrate the century of existence, we would like to thank everyone who has been part of this history. From humble beginnings in 1911, we are a much stronger and vibrant department in 2011. Our department has steadily gained reputation for research in Robotics, Unmanned Aerial Vehicles (UAVs), Communication Systems, Computer Engineering,

Dr. Guru Subramanyam

Micro and Nanoelectronics, Electro-Optics, and Signal & Image Processing. Our award winning faculty are tied strongly with the Institute for Development and Commercialization of Advanced Sensor Technologies (IDCAST), Electro-optics graduate program, Air Force Research Laboratory, and industry. Fittingly, the UDRI's highest research award, The Wohlaben Award of Excellence, was won by a team which consists of several of our alumni. The award winners include, Professor Eric Balster (2000), Ben Fortener (2007), Thaddeus Marrara, Kenneth Simone, William Turri (2000) Nick Vicen (2005) and David Walker.



Come celebrate our department's beginning of the second century!! Even if you cannot personally join us, we would like to hear from you this year!

Graduating Class of May 2011



On May 8, 2011, the ECE department bid farewell to 32 of our finest as they receive their undergraduate degrees from the SoE. Many will be starting their new careers while others will be continuing their education. On April 19, they gathered together to enjoy pizza with their fellow classmates and the ECE faculty as they completed what seemed like "piles" of exit surveys and interview forms.

Congratulations Class of 2011!



Dr. Vijayan K. Asari, recognized for his achievements in computer vision, pattern recognition, and image processing.



Vijayan K. Asari Elected SPIE Senior Member

Congratulations to Dr. Vijayan Asari who will be one of 28 newly elected SPIE Senior Members being honored by the IEEE Society this year. Senior Members are members of distinction who are honored for their professional experience, their active involvement with the optics community and SPIE, and/or significant performance that sets them apart from their peers. 72 SPIE members have received this promotion since the Senior Member distinction was introduced in 2008. "The annual recognition of Senior Members provides an opportunity for us to acknowledge Members for their outstanding technical contributions and service to SPIE," says

Katarina Svanberg, SPIE President. Asari is a leading researcher in computer vision and image processing, particularly in security automation. His work spans real-time sensing and processing in wide-area surveillance, bio-inspired visual data processing for human robot interaction, and human and vessel identification in complex environments. In addition, Asari developed a vision-guided microrobotic endoscopy system. He founded the world-class Computational Intelligence and Machine Vision Laboratory at Old Dominion University, and since has been appointed as the Ohio Research Scholars Chair in Wide Area Surveillance at the University of Dayton, as part of the Ohio Academic Research Cluster for Layered

Sensing, to establish a world-class research center in Dayton in collaboration with other participating universities in Ohio. Asari has contributed to more than 150 conferences, and has given many invited talks at seminars, conferences, and workshops. With SPIE, he has been an active participant in the SPIE Defense + Security symposium, the IS&T Electronic Imaging symposium, and more events focused on optical engineering and applications. Asari is also a contributor to the SPIE journal Optical Engineering and the SPIE Journal of Electronic Imaging (JEI), as well as a reviewer for JEI.

ECE Centennial Distinguished Speaker Colloquia Series



Dr. Cihan Dagli, guest speaker at the ECE Centennial Distinguished Speaker Series.

As part of the School of Engineering centennial celebration, the ECE department will be hosting the Centennial Distinguished Speaker Series throughout the year. On March 11, 2011 our first guest speakers were invited to talk on topics ranging from Tyflos to Biotronics.

James G. Grote, Principal Electronics research Engineer with AFRL, WPAFB, provided insight on his research area in "Biotronics—Biotechnology for Electronic and Photonic Applications". **Nikolaos Bourbakis**, OBR Distinguished Professor of IT from Wright State University, spoke on "Tyflos: A Wearable System-Prototype for Assisting Visually Impaired People's Independence". And last but not least **Cihan Dagli**, Professor ECE & Engr. Management from Missouri University of Science & Technology lectured on "Smart Systems Architecting and Model Based Engineering".

Three more speakers have been invited to lecture on April 8, 2011. They are: **Jan Allebach**,

HP Distinguished Professor in ECE from Purdue University, discussing "Print and Paper: Is the Future Dead?". **Arif Ghafoor**, Director of Distributed Multimedia Systems Lab, also from Purdue University, lecturing on "Challenges for Mobile Multimedia Services in Wireless Networking". Our final speaker of the day will be **Manijeh Razeghi**, Director for Quantum Devices, from Northwestern University, who will present her research on "Modern Atomic Engineering: Building Better Optoelectronics from the Atoms Up". Following each presenter there will be a 20 minute break where refreshments will be available for those in attendance.

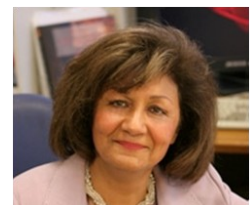
Lectures will take place on the UD campus in the Science Center Auditorium Room 114 from 1:00-5:00 p.m. and is open to the public. For more information on the colloquia lecture series please feel free to contact the ECE department at 229-3611 or via email marilyn.knisley@notes.udayton.edu



Jan Allebach



Arif Ghafoor



Manijeh Razeghi



Jim Grote



Nick Bourbakis

Charles Gauder - 2010 US Youth Soccer Volunteer of the Year

When Charles Gauder's daughter became involved in soccer in 1983, he did as well. Since then he has taken on numerous roles within Beaver Creek Soccer Association including field director, making twice-daily trips to the complex to ensure the fields are open and accessible to players. Gauder has been involved in all areas of soccer, but his main duty is the field director for the Ackney Soccer Complex in Beaver Creek which boasts 40 fields and over 30 acres. As a registered official, he has worked hundreds of games at all levels for 25 years. Gauder was nominated by Carol Maas, state commissioner of the Ohio South Youth Soccer Organization, who praised him as, "one

of those 'go to guys' every organization needs to get things done". As a father of eight children, his volunteer work began with the Boy Scouts, along with the Beaver Creek Baseball Association as president in the late 1980s. His active roles in leadership were also recognized in 2009, when he was named Volunteer of the Year by the City of Beaver Creek Parks and Recreation Board, and again in 2010 as the Miami Valley Youth Soccer Association Volunteer of the Year. So it was no real surprise when it was announced at the USYS Awards Gala in Louisville, Kentucky on Feb, 25, 2011, that he not only received the Regional II volunteer of the year award but was

also the recipient of the US Youth Soccer Volunteer of the Year!

Gauder received his master's degree in electrical engineering at UD while working at WPAFB. When he retired after 30 years at the base, he began a second career as an assistant professor of electrical engineering at UD. On numerous occasions he was voted "favorite professor" during his 23 years on staff by students in the engineering department. Although he has now retired from teaching he continues as an advisor and, as a life-long ham radio operator, volunteers his time to conduct ham radio examination testing in the Dayton area.



Charles Gauder (left) with son David (right), doing what he loves most. "I enjoy staying busy and being around young people. It keeps you energetic".

Eta Kappa Nu /IEEE News

On February 19, IEEE/HKN Loomis. According to Matt held its second annual Soldering Session for UD ECE students. In total, nine students were in attendance including 3 freshman, 3 sophomores, 1 junior, and 2 seniors. The freshman impressed their peers with their enthusiasm and interest in learning more about IEEE. Cory Bowling and Matt Lemon assisted fellow students in working through the Elenco Soldering kits provided by the department through Dr.

Loomis. According to Matt held its second annual Soldering Session for UD ECE students. In total, nine students were in attendance including 3 freshman, 3 sophomores, 1 junior, and 2 seniors. The freshman impressed their peers with their enthusiasm and interest in learning more about IEEE. Cory Bowling and Matt Lemon assisted fellow students in working through the Elenco Soldering kits provided by the department through Dr.

The IEEE/HKN service organizations also offer tutoring for all ECE students in ECE subjects

7:30-9:00 p.m. For more information please contract an HKN or IEEE representative.

Officers of HKN 2011-2012

- President – Joe Silk
- Vice President – Sara McManus
- Secretary – John Wedig
- Treasurer – Kristen Diddle
- Event Committee Chair – Cory Bowling

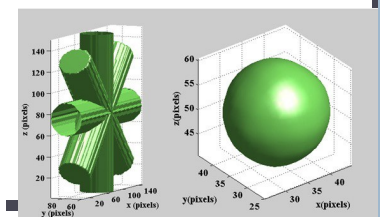
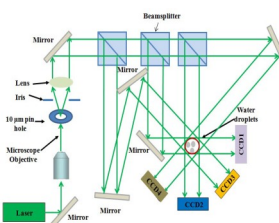
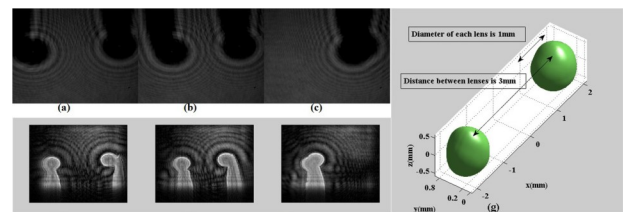


Soldering 101—Students in ECE taking advantage of learning the technique of soldering.

ECE Faculty In the News

International Society for Optics and Photonics (SPIE) highlighted Professor Partha Banerjee's recent work on digital holography for 3D reconstruction of shapes of translucent objects in the online SPIE Newsroom, dated March 24, 2011. The article is entitled "Single-beam holographic tomography creates images in three dimensions" by Georges

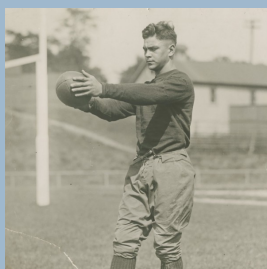
Nehmetallah, Partha Banerjee, and Nikolai Kukhtarev. The article describes the novel, non-intrusive technique developed by Professor Banerjee's group that can record and aid 3D reconstruction of the shapes of translucent objects.



School of Engineering was first housed in St. Joseph Hall (1920)



Patrick Gleason, a Flyer Fullback from 1927-1929, was from Honolulu, Hawaii. He studied electrical engineering at UD and graduated in 1930.



UD Archives

Spring 2011 inductees of HKN: Michael Rucci, Mark Connor, Julian John, Kyle McBrady, Howard Poston



Dr. John Loomis welcomed a new addition to his family on March 9, 2011. Granddaughter, Rosetta Kennedy came into the world weighing 7lbs.



Awards/Honors/Promotions for ECE Faculty

2010 Winners of Wohlleben-Hochwalt Outstanding Professional Research Award, University of Dayton Research Institute

- **William Turri**, Sensor Systems Division
- **Thaddeus Marrara**, Sensor Systems Division
- **Nicholas Vicen**, Sensor Systems Division
- **David Walker**, Sensor Systems Division
- **Kenneth Simone**, Sensor Systems Division
- **Benjamin Fortener**, Sensor Systems Division
- **Eric Balster**, UD ECE Department

This team is being recognized for their achievements in the Development and Deployment of Advanced Algorithms for Persistent Surveillance. Along with being innovative and making a significant technical contribution, the team's accomplishments had an immediate and significant impact on protecting our service personnel in Afghanistan.

2011 Harrell V. Noble Award

Professor **Elena Guliants** won the IEEE Dayton section's "Harrell V. Noble Award" in recognition of her achievements in Electronic Devices for the year 2011. Dr. Guliants has authored/coauthored over 100 journal/conference papers in her areas of expertise.



2011 Sigma Xi George B. Noland Research Award for Excellence

Professor **Qiwen Zhan** won the UD Sigma Xi's George Noland Award for research excellence.

SBIR Achievement Award

Partha Banerjee received the SBIR achievement award which are awarded to the best Army SBIR projects based on originality of research, relevance to the Army's mission, commercialization potential and the overall performance of the project. Last year 471 projects were submitted, 37 were nominated, and 11 won.

Professor **Andrew Sarangan** has been promoted to the rank of Full Professor, effective 2011-12 academic year.

ECE Graduates (December 2010)

BS/BE Graduates

Michelle L. Bible
Andres Calvo
Frederick J. Jaklitsch
Kevin M. Komiensky
John M. McNichols

MS Degrees Awarded

Siddhartha Abbagari
Muhannad S. Almutiry
David Allen Beckman
Jhansi Rani Goli
Xiadon Jin
Sravani Manne
Guru K. Narayanan
Sahman Nasir

Joel Ortiz-Soto
Ramya P. Bhayankara
Collenn Blickensderfer
Jedidiah James Whelan
Yi Zhang



2010 Faculty Publications/Conferences / Journals / Patents

M. Moinul Islam, **Vijayan K. Asari**, M. Nazrul Islam, and M. A. Karim, "Super-resolution enhancement technique for low resolution video," *IEEE Transactions on Consumer Electronics*, vol. 56, no. 2, pp. 919 - 924, May 2010.

Satyanaadh Gundimada, Neeharika Gudur, and **Vijayan K. Asari**, "Face recognition in multi-sensor images based on a novel modular feature selection technique," *Information Fusion : An International Journal on Multi-Sensor, Multi-Source Information Fusion*, vol. 11, no. 2, pp. 124-132, April 2010.

Ming-Jung Seow, **Vijayan K. Asari**, and Adam Livingston, "Learning as a nonlinear line of attraction in a recurrent neural network," *Neural Computing and Applications*, vol. 19, no. 2, pp. 337-342, March 2010.

Syed Mahfuzul Aziz, **Vijayan K. Asari**, M. Alamgir Hossain, Mohammad A. Karim, Mariofanna Milanova, "Guest Editorial," *Journal of Computers*, vol 5, no 1, pp.1-3, January 2010.

Jacob Foytik, **Vijayan K. Asari**, R. Cortland Tompkins, and Menna Youssef, "Phase space for face pose estimation," *Lecture Notes in Computer Science*, Published by *Springer-Verlag Berlin/Heidelberg*, Advances in Visual Computing, Edited by G. Bebis et al. *Proceedings of the International Symposium on Visual Computing - ISVC - 2010*: ISBN: 978-3-642-10519-7, vol. 6455/2010, pp. 49-58, November 2010.

Numan Unaldi and **Vijayan K. Asari**, "Undecimated wavelet transform-based image interpolation," *Lecture Notes in Computer Science*, Published by *Springer-Verlag Berlin/Heidelberg*, Advances in Visual Computing, Edited by G. Bebis et al. *Proceedings of the International Symposium on Visual Computing - ISVC - 2010*: ISBN: 978-3-642-10519-7, vol. 6455/2010, pp. 474-483, November 2010.

Rupal Patel and **Vijayan Asari**, "A Neighborhood dependent nonlinear technique for color image enhancement," *Lecture Notes in Computer Science*, Published by *Springer-Verlag Berlin/Heidelberg*, Image Analysis and Recognition: *Proceedings of the International Conference on Image Analysis and Recognition - ICIAR 2010*: ISBN: 978-3-642-13771-6, vol. 6111/2010, pp. 23-34, June 2010.

Vijayan K. Asari, "A manifold based methodology for color constancy," *IEEE Computer Society Workshop on Applied Imagery Pattern Recognition - AIPR 2010*, Washington DC, 13-15 October, 2010.

Varun Santhaseelan and **Vijayan K. Asari**, "An adaptive parameterization method for SIFT based video stabilization," *IEEE Computer Society Workshop on Applied Imagery Pattern Recognition - AIPR 2010*, Washington DC, 13-15 October, 2010.

Jacob Foytik, **Vijayan K. Asari**, R. Cortland Tompkins, and Menna Youssef, "Head pose estimation from images using canonical correlation analysis," *IEEE Computer Society Workshop on Applied Imagery Pattern Recognition - AIPR 2010*, Washington DC, 13-15 October, 2010.

R. Cortland Tompkins, **Vijayan K. Asari**, Jacob Foytik, and Menna Youssef, "Multi-view face detection using phase congruency from Haar features," *IEEE Computer Society Workshop on*

Applied Imagery Pattern Recognition - AIPR 2010, Washington DC, 13-15 October, 2010.

Menna Youssef, **Vijayan K. Asari**, R. Cortland Tompkins, and Jacob Foytik, "Hull convexity defects features for human activity recognition," *IEEE Computer Society Workshop on Applied Imagery Pattern Recognition - AIPR 2010*, Washington DC, 13-15 October, 2010.

Praveen Sankaran and **Vijayan K. Asari**, "A second order polynomial based subspace projection method for dimensionality reduction," *Proceedings of 2010 IEEE 17th International Conference on Image Processing - ICIP 2010*, Hong Kong, pp. 3857 - 3860, 26-29 September, 2010.

M. Nazrul Islam, M. A. Karim, M. S. Alam, and **Vijayan K. Asari**, "Optical security system using multiple phase-shifted reference-based joint transform correlation," *Proceedings of SPIE: Optical Pattern Recognition XXI, SPIE Defense and Security Symposium*, Orlando, FL, vol. 7696, pp. 1-10, 05-09 April 2010.

E. J. Balster, and W. F. Turri. "Integer-based Post-compression Rate-distortion Optimization Computation in JPEG 2000 Compression", *SPIE Journal of Optical Engineering*, vol. 49, no. 7, pp. 77005 - 77011, July 2010.

E. J. Balster, and W. F. Turri. "Efficient Processing of Optimally Truncated JPEG 2000 Imagery", *SPIE Journal of Optical Engineering*, vol. 49, no. 2, pp. 27001 - 27012, Feb. 2010.

C. D. McGuinness, **E. J. Balster**, and F. A. Scarpino. "Comparison of DEM and BEET Linearization Techniques for Flash Analog-to-Digital Converters", to appear in *IEEE Int. Conf. on Electronics, Circuits, and Systems*. Athens, Greece, December, 12-15, 2010.

D. L. Lucking, **E. J. Balster**, and F. A. Scarpino. "An Increased Throughput FPGA Design of the JPEG 2000 Binary Arithmetic Decoder", in Proc. *IEEE Int. Conf. on Digital Image Computing: Techniques and Applications*. Sidney, Australia. December 1 - 3, 2010.

E. J. Balster and W. F. Turri. "Fast PCRD-Opt Computation in JPEG 2000", in Proc. *IEEE Int. Conf. on Signals and Electronic Systems*. Gliwice, Poland, Sept. 7 - 10, 2010.

C. D. McGuinness and **E. J. Balster**. "A Model for Flash Analog-to-Digital Converters with Bit-Extended Error Table Liberalization", In Proc. *IEEE National Aerospace and Electronics Conference*. Dayton, OH, July 14 - 16, 2010.

E. J. Balster and D. L. Lucking. "BYPASS and PARALLEL Modes for JPEG 2000 Compression of Natural Imagery", in Proc. *IEEE National Aerospace and Electronics Conference*. Dayton, OH, July 14 - 16, 2010.

P.C. Hytla, J.C. French, N.P. Vicen, R.C. Hardie, **E. J. Balster**, F.O. Baxley, K. J. Barnard, and M. A. Bicknell. "Image Compression Emphasizing Pixel Size Object in Midwave Infrared Persistent Surveillance Systems", In Proc. *IEEE National Aerospace and Electronics Conference*. Dayton, OH, July 14 - 16, 2010.

2010 Faculty Publications, Conferences, Journals, Patents, continued

E. J. Balster, B. T. Fortener, and W. F. Turri. "Integer Computation of JPEG 2000 Wavelet Transform and Quantization for Lossy Compression", in Proc. *IEEE Int. Symp. Communication Systems, Networks, and Digital*.

E. J. Balster, B. T. Fortener, and W. F. Turri. "Integer Computation of JPEG 2000 Wavelet Transform and Quantization for Lossy Compression", in Proc. *IEEE Int. Symp. Communication Systems, Networks, and Digital*

J.T. Messay, **R. C. Hardie** and S. K. Rogers, "A New Computationally Efficient CAD System for Nodule Detection in CT Imagery," *Medical Image Analysis*, 14(3):390-406, June 2010.

R. C. Hardie, *Super-Resolution Using Adaptive Wiener Filters*, invited chapter in *Super-Resolution Imaging* Edited by Peyman Milanfar, Series: Digital Imaging and Computer Vision Taylor&Francis/CRC Press. ISBN: 978-1-4398-1930-2. 2010.

P. C. Hytla, J. C. French, F. O. Baxley, K. J. Barnard, M. A. Bicknell, **R. C. Hardie**, E. J. Balster, N. P. Vicen, "Dynamic Range Management and Image Compression Emphasizing Dis-mount Targets in Midwave Infrared Persistent Surveillance Systems", *Military Sensing Symposium*, 2010.

F. Baxley, K. Barnard, **R. Hardie**, and M. Bicknell, "Flight Test Results of a Rapid Step-Stare and Microscan Midwave Infrared Sensor Concept for Persistent Surveillance," 2010 *Meeting of the Military Sensing Symposia (MSS) Specialty Groups On Passive Sensors*, Battlefield Survivability & Discrimination, Detectors, and Materials, SENSIAC Produced MSS Proceedings, Report#: MSS-PSCC-10-031, Vol I, PF06 (2010).

R. C. Hardie, D. R. Droege, and K. M. Hardin, "Real-Time Atmospheric Turbulence Correction for Complex Imaging Conditions," *Proceedings of MSS Passive Sensors*, Orlando, FL, February, 2010.

Jiang, **R. Ordonez**, R. Penno, "Analysis of Synchronized Coupled Oscillators with Application to Radar Beam Scanning," *Control Engineering Practice*, Vol. 18, pp. 1379–1385, 2010.

K. Mitra, M. Gates, C. Barber, T. Goodwin, R. Selmic, **R. Ordonez**, A. Sekman, M. Malkani, "Sensor Agnostics for Networked MAV Applications," Evolutionary and Bio-Inspired Computation: Theory and Applications IV, Proc. of SPIE Vol. 7704, 77040R, April 2010.

"RF Emitter Localization with Position-Adaptive MAV Platforms," **Raul Ordonez**, Miguel Gates, Kasongo Moma, Atindra Mitra, Rastko Selmic, Phil Detweiler, Craig Cox, Greg Parker, Zach Goff. IEEE NAECON 2010.

Jiang, H., Ordonez, R. E., **Penno, R. P.** (2010). Analysis of Synchronized Coupled Oscillators with Application to Radar Beam Scanning. *Control Engineering Practice*, 18, 1379–1385.

Jiang, H., **Penno, R. P.** (2010). Effects of Amplitude Dynamics on Beam Steering and Shaping in Coupled Oscillator Array. *IEEE Antennas and Wireless Propagation Letters*, 9, 474-477.

G. Subramanyam, M. Patterson, et al., "Linearity and Temperature Dependence of Large-Area Processed High-Q Barium Strontium Titanate Thin-film Varactors", IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL Volume: 57 Issue: 7 Pages: 1692-1695 Published: 2010

G. Subramanyam, Structural investigations and magnetic properties of sol-gel Ni_{0.5}Zn_{0.5}Fe₂O₄ thin films for microwave heating Author(s): Gao, PZ; Rebrov, EV; Verhoeven, TMWGM, et al. Source: JOURNAL OF APPLIED PHYSICS Volume: 107 Issue: 4 Article Number: 044317 Published: 2010

Resonant sensor for wireless, passive sensing of specific environmental analyte e.g. chemical, has electro-optic polymer sensing layer positioned between top and bottom conductive layers; Patent Number(s): US2010008825-A1; WO2010009105-A1 Assignee: UNIV DAYTON Inventor(s): **G. SUBRAMANYAM**

Varactor shunt switch for microwave application, has tunable nanostructured barium strontium titanate layer that is formed on bottom metal layer stack formed on sapphire substrate Patent Number(s): US2010096678-A1; EP2180541-A1; JP2010136338-A Assignee: UNIV DAYTON Inventor(s): **G. SUBRAMANYAM**

W. Chen, Z. Wu, D. C. Abeyasinghe, R. L. Nelson and **Q. Zhan**, "Spiral plasmonic lens as miniature circular polarization analyzer" *Optics in 2010* Special issue, *Optics and Photonics News (OPN)*, **21** (12) 45, (2010).

J. Wang, W. Chen and **Q. Zhan**, "Engineering of high purity ultra-long optical needle field through reversing the electric dipole array radiation," *Opt. Express* **18**, 21965-21972 (2010).

G. Rui, Y. Lu, P. Wang, H. Ming and **Q. Zhan**, "Generation of enhanced evanescent Bessel beam using band-edge resonance," *J. Appl. Phys.*, **108**, 074304 (2010).

X. L. Wang, P. Wang, C. C. Chen, Y. H. Lu, H. Ming and **Q. Zhan**, "Plasmonic racetrack resonator with high extinction ratio under critical coupling condition," *J. Appl. Phys.* **107**, 124517 (2010).

W. Chen, D. C. Abeyasinghe, R. L. Nelson, and **Q. Zhan**, "Experimental confirmation of miniature spiral plasmonic lens as a circular polarization analyzer," *Nano Lett.*, **10**, 2075-2079 (2010).

Z. Wu, W. Chen, D. C. Abeyasinghe, R. L. Nelson, and **Q. Zhan**, "Two-photon fluorescence characterization of spiral plasmonic lenses as circular polarization analyzers," *Opt. Lett.* **35**, 1755-1757 (2010).

R. Zhou, J. W. Haus, P. E. Powers, and **Q. Zhan**, "Vectorial fiber laser using intracavity axial birefringence," *Opt. Express* **18**, 10839-10847 (2010).

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- W. Chen and **Q. Zhan**, "Diffraction limited focus with controllable arbitrary three dimensional polarization," *J. Opt.* , **12** , 045707, (2010)
- A. Tschimwang and **Q. Zhan**, "High spatial-resolution nulling microellipsometer using rotational polarization symmetry," *Appl. Opt.* , **49** , 1574-1580, (2010).
- Q. Zhan**, "Magnetic field distribution of a highly focused radially-polarized light beam: comment," *Opt. Express* **18** , 765-766 (2010).
- G. Rui, Y. Lu, P. Wang, H. Ming and **Q. Zhan**, "Evanescence Bessel Beam Generation through Filtering Highly Focused Cylindrical Vector Beams with a Defect Mode One-Dimensional Photonic Crystal," *Opt. Commun.* , **283** , 2272-2276 (2010).
- G. Rui, W. Chen, Y. Lu, P. Wang, H. Ming and **Q. Zhan**, "Plasmonic near-field probe using the combination of concentric rings and conical tip under radial polarization illumination," *J. Integer Computation of JPEG 2000 Wavelet Transform and Quantization for Lossy Compression*, in Proc. *IEEE Int. Symp. Communication Systems, Networks, and Digital*.
- X. L. Wang, P. Wang, C. C. Chen, J. X. Chen, Y. H. Lu, H. Ming and **Q. Zhan**, "Active modulation of plasmonic signal with a subwavelength metal/nonlinear dielectric materials/metal structure," *Chinese Optics Letters* , **8** , 584-587 (2010).
- T. G. Brown and **Q. Zhan**, "Introduction: Unconventional Polarization States of Light Focus Issue," *Opt. Express* **18** , 10775-
- B. Han and **T. M. Taha**, "Acceleration of spiking neural network based pattern recognition on NVIDIA graphics processors," *Applied Optics*, 49:(101), 83-91, April 2010.
- P. Yalamanchili, S. Mohan, R. Jalasutram, and **T. M. Taha**, "Acceleration of Hierarchical Bayesian Network Based Cortical Models on Multicore Architectures," *Parallel Computing*, 36:(8), 449-468, August 2010.
- C. Yakopcic, E. Shin, **T. M. Taha**, G. Subramanyam, P. T. Murray, S. Rogers, "Fabrication and Testing of Memristive Devices," International Joint Conference on Neural Networks, Barcelona, Spain, July 2010.
- T. M. Taha**, P. Yalamanchili, M. Bhuiyan, R. Jalasutram, C. Chen, and R. Linderman, "Neuromorphic Algorithms on Clusters of PlayStation 3s," International Joint Conference on Neural Networks, July 2010.
- B. Han and **T. M. Taha**, "Neuromorphic Models on a GPGPU Cluster," International Joint Conference on Neural Networks, July 2010.
- C. Yakopcic, **T. M. Taha**, G. Subramanyam, E. Shin, P. T. Murray, and S. Rogers, "Memristor Fabrication and Characterization; An Adaptive Coded Aperture Imaging & Sensing Opportunity," Proc. SPIE, Vol. 7818, 78180J, 2010.

Awards/Honors to ECE Students

2010 AFCEA Dayton-Wright Chapter Scholarship Awards

- Alan Michael Smith
- Mathew B. Donovan

2011 IEEE Dayton Section's Outstanding Student Members

- Timothy Hartnet
- Joseph Silk

May 2011 Graduation Departmental Awards

- Matthew Hagenbuch—Thomas R. Armstrong '38, Award of Excellence for Outstanding Electrical Engineering Achievement
- Sarah Struckman—Brother Louis H. Rose, S.M. '33, Award of Excellence to the Outstanding Junior in Electrical & Computer Engineering
- Michael Riedl—Anthony Horvath and Elmer Steger, '22, Award of Excellence to the Outstanding Senior in Electrical & Computer Engineering
- Joseph Klein—Mary C. Millett Endowment Award, Award for the Outstanding Senior in Electrical and Computer Engineering
- Allyson Denzinger, Outstanding co-op student award

Congratulations to all the award winners!