

## Vladimir I. Prodanov

### Education

1995–97	Ph.D. Electrical Engineering	State University of New York, Stony Brook, NY
1992–95	M.S. Electrical Engineering	State University of New York, Stony Brook, NY
1987–91	(no degree)	Technical University of Sofia, Bulgaria

### Employment History

06/2015 - present	Associate Professor	Electrical Engineering, Cal Poly, San Luis Obispo, CA
01/2009 – 06/2015	Assistant Professor	Electrical Engineering, Cal Poly, San Luis Obispo, CA
2004 – 2008	Member	MHI Consulting, LLC, Murray Hill, NJ
2003 – 2004	Senior MTS	Analog Products, Agere Systems, Allentown, PA
2001 – 2003	Member of Technical Staff	Wireless Division, Agere Systems, Berkeley Heights, NJ
1997 – 2001	Member of Technical Staff	Bell Labs – Research, Lucent Tech., Murray Hill, NJ
<i>part-time/other:</i>		
1999 – 2002	Adjunct Assistant Professor	EE Dept., Columbia University, New York City, NY
1996 – 1997	Lecturer	EE Dept., SUNY, Stony Brook, NY
1996 – 1997	Design Engineer	Scanner Products, Symbol Tech., Holtsville, NY
1994 – 1997	Research Assistant	EE Dept., SUNY, Stony Brook, NY

### Professional Affiliation/Membership

- Institute of Electrical and Electronics Engineers (IEEE)
- American Society of Engineering Education (ASEE)

### Awards and Honors

2014	<i>Don &amp; Paula Heye Award for Outstanding Teaching</i>	College of Engineering, Cal Poly, SLO
2012	<i>Outstanding Professor in the College of Engineering</i>	Engineering Student Council, Cal Poly, SLO
2006	<i>Best Poster Paper Award</i>	IEEE Custom Integrated Circuit Conference
1997	<i>Excellence in Research Award</i>	SUNY Stony Brook Chapter of Sigma Xi
<i>Other:</i>		
2015 & 2016	Student-presented Faculty Appreciation Award “for going above and beyond in inspiring and assisting Multicultural Engineering Program (MEP) students”	

### Patents Received

	US Pat. Number	Filed	Issued	Assignee
21	8,873,690	08/10/13	28/10/14	Blue Danube Labs, Inc.
20	8,611,959	30/06/11	17/12/13	Blue Danube Labs, Inc.
19	8,553,826	02/08/12	08/10/13	Blue Danube Labs, Inc.
18	8,259,884	21/07/08	04/09/12	Blue Danube Labs, Inc.
17	7,570,923	18/05/04	04/08/09	Agere Systems, Inc.
16	7,509,516	03/04/06	24/03/09	Applied Materials, Inc.
15	7,500,155	28/03/06	03/03/09	Applied Materials, Inc.
14	7,471,945	30/11/04	30/12/08	Agere Systems, Inc.
13	7,274,264	22/12/04	25/09/07	Agere Systems, Inc.
12	7,135,931	29/07/04	14/11/06	Agere Systems, Inc.

11	7,084,705	01/06/04	01/08/06	Agere Systems, Inc.
10	7,031,690	14/11/02	18/04/06	Agere Systems, Inc.
9	7,020,221	20/11/01	28/03/06	Agere Systems, Inc.
8	6,904,538	20/11/01	07/06/05	Agere Systems, Inc.
7	6,693,469	23/04/02	17/02/04	Lucent Technologies, Inc.
6	6,580,324	12/09/01	17/06/03	Agere Systems, Inc.
5	6,577,170	27/11/01	10/06/03	Agere Systems, Inc.
4	6,560,296	04/05/99	06/05/03	Lucent Technologies, Inc.
3	6,310,565	03/02/00	30/10/01	Lucent Technologies, Inc.
2	6,222,418	29/02/00	24/04/01	Lucent Technologies, Inc.
1	6,211,717	28/05/99	03/04/01	Lucent Technologies, Inc.

### Peer-reviewed Journal Publications

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- 9 V. Prodanov and D. Dolan, "Method for selecting coupling and by-pass capacitors in multi-stage linear circuits," *IET Journal of Engineering*, accepted Sept. 24, 2017.
- 8 J. Arias, P. Kiss, V. Prodanov, V. Boccuzzi, M. Banu, D. Bisbal, J. San Pablo, L. Quintanilla, J. Barbolla, "A 32- mW 320-MHz Continuous-Time Delta-Sigma ADC for Multi-mode Wireless-LAN Receivers," *IEEE Journal of Solid-State Circuits*, vol. 41, Issue 2, Feb. 2006, pp. 339-351.
- 7 P. Kiss and V. Prodanov, "One-tap wideband I/Q compensation for zero-IF filters," *IEEE Transactions on Circuits and Systems-I*, vol. 51, June 2004, pp. 1062-1074.
- 6 Y. Palaskas, Y. Tsvividis, V. Prodanov and V. Boccuzzi, "A "divide and conquer" technique for implementing wide dynamic range continuous-time filters," *IEEE Journal of Solid-State Circuits*, vol. 39, No. 2, Feb. 2004, pp. 297- 307.
- 5 P. Kiss, V. Prodanov, and J. Glas, "Complex Low-Pass Filters," *International Journal of Analog Integrated Circuits and Signal Processing*, 2003, Kluwer Academic Publishers, vol. 35, no.1, pp. 9-23 (invited)
- 4 V. Prodanov and M. Green, "Bipolar/CMOS (weak inversion) rail-to-rail constant-gm input stage," *IEE Electronics Letters*, Feb. 1997, vol. 33, Issue: 5, pp. 386 –387.
- 3 V. Prodanov and M.Green, "A differential active load and its applications in CMOS analog circuit designs," *IEEE Transactions on Circuits and Systems-II*, 1997, vol. 44, pp. 265-273.
- 2 V. Prodanov and M. Green, "Improved biquad structures using double-output transconductance blocks for tunable continuous-time filters," *International Journal of Analog Integrated Circuits and Signal Processing*, 1997, Kluwer Academic Publishers, v.13, issue 3, pp. 233-240. (invited)
- 1 V. Prodanov and M. Green, "CMOS current mirrors with reduced input and output voltage requirements," *IEE Electronics Letters*, 1996, vol. 32, Issue: 2, pp. 104 –105.

### Peer-reviewed Conference Proceedings

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- 26 M. Chang and V. Prodanov, "Experimental study and modeling of the Gm-I dependence of long-channel MOSFETS," *IEEE 61<sup>st</sup> International Midwest Symposium on Circuits and Systems*, Windsor, Ontario, Canada, Aug. 5-8, 2018.
- 25 V. Prodanov and K. Prodanov, "Relationship between time-constants and 3dB cutoff of high-order damped LTI systems," *IEEE 61<sup>st</sup> International Midwest Symposium on Circuits and Systems*, Windsor, Ontario, Canada, Aug. 5-8, 2018.
- 24 V. Prodanov and J. Greene, "Alumni Grassroots Leadership enables Sponsored Course Development," *ASEE 125<sup>th</sup> Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
- 23 A. Chen, B. Benson, M. Mitchell, R. Bae, V. Prodanov, and C. Kecy, "Oceanographic instrument simulator," *Proc. MTS/IEEE Oceans 2015*, Washington, Oct. 19-22, 2015.

- 22 D. Dolan, V. Prodanov, and T. Taufik, "Energy and economic losses due to soiling on utility scale PV system to guide timing of cost effective cleaning," *IEEE 42<sup>nd</sup> Photovoltaic Specialist Conference*, New Orleans, LA, June 14-19, 2015.
- 21 S. Yim, C. Clark, T. Peters, V. Prodanov and P. Fidopiastis, "An Investigation into ROV based Tracking of a Shallow Water Nocturnal Squid," *Proc. MTS/IEEE Oceans 2013*, San Diego, Sept. 23-26, 2013.
- 20 G.S. Rai, V. Prodanov and S. Garber, "A Class-C Amplifier Linearized by a Constant Conduction Angle Biasing Circuit," *IEEE 56<sup>th</sup> International Midwest Symposium on Circuits and Systems*, Columbus, Ohio, Aug. 4-7, 2013.
- 19 V. Prodanov, "Identifying At-Risk Students: How Use of Optional Study Materials and Collection of Graded Work Correlate with Academic Performance," *Proceedings of the 2013 ASEE PSW Section Conference*, UC Riverside, April 18-20, 2013.
- 18 V. Prodanov, "Empirical model for the transconductance-current dependence of short-channel MOSFETs," *IEEE 55th International Midwest Symposium on Circuits and Systems*, Boise, Idaho, Aug. 2012.
- 17 V. Prodanov, "In-Class Lecture Recording: What Lecture Capture has to Offer to the Instructor," *ASEE PSW Section Conference*, San Luis Obispo, April 19-21, 2012.
- 16 D. Dolan, V. Prodanov and Taufik, "Student Perception of Lecture Video Use as a Means to Increase Time for in Class Problem Solving Applications," *118th ASEE Annual Conference*, Vancouver, B.C. Canada, June 2011.
- 15 M. Banu and V. Prodanov, "A System Approach to Integrated Power Amplifier Analysis and Design," *International Symposium on Signals Circuits and Systems*, vol. 1, pp. 1-4, 2007. (invited)
- 14 V. Prodanov and Mihai Banu, "GHz Serial Passive Clock Distribution in VLSI Using Bidirectional Signaling," *Proc. IEEE Custom Integrated Circuit Conference*, pp. 285-288, Sept. 2006.
- 13 M. Banu, V. Prodanov and K. Smith, "A differential scheme for LDMOS power transistor class-AB biasing using on-chip transconductance replicas," *IEEE Asia Pacific Microwave Conference*, Dec. 2004.
- 12 P. Kiss and V. Prodanov, "I/Q imbalance of two-path ladder filters," *IEEE International Symposium on Circuits and Systems*, 2004.
- 11 P. Kiss, V. Prodanov and J. Glas, "Complex Low-Pass Filters," *IEEE International Symposium on Circuits and Systems*, vol. 1, pp. 525-528.
- 10 V. Prodanov and V. Boccuzzi, "7V tristate-capable output buffer implemented in standard 2.5V CMOS process," *IEEE Custom Integrated Circuits Conference*, 2001, pp. 497 - 500.
- 9 V. Prodanov, "Robust high-pass and notch Gm-(grounded) C biquads: how many different topologies are there?" *IEEE International Symposium on Circuits and Systems*, 2001, vol. 1, pp. 21-24.
- 8 V. Prodanov, G. Palaskas, J. Glas and V. Boccuzzi, "A CMOS AGC-less IF-strip for Bluetooth," *IEEE European Solid-State Circuit Conference*, 2001, pp. 488-491.
- 7 A.Ong, V. Prodanov and M. Tarsia, "A method for reducing the variation in "on" resistance of a MOS sampling switch," *IEEE International Symposium on Circuits and Systems*, 2000, vol. 5 pp. 437-440.
- 6 V. Prodanov, "V-I converters with transconductance proportional to bias current in any technology," *IEEE International Symposium on Circuits and Systems*, 2000, vol. 4, pp.201 –204.
- 5 V. Prodanov and M. Green, "New CMOS universal constant-Gm input stage," *IEEE International Conference on Electronics, Circuits and Systems*, 1998, vol. 2, pp. 359 –362.
- 4 V. Prodanov and M. Green, "Design techniques and paradigms toward design of low-voltage CMOS analog circuits," *IEEE International Symposium on Circuits and Systems*, 1997, vol. 1, pp. 129-132.
- 3 V. Prodanov and M. Green, "Simple rail-to-rail constant-transconductance input stage operating in strong inversion," *IEEE 39th Midwest Symposium on Circuits and Systems*, vol. 2, pp. 957 –960.
- 2 V. Prodanov and M. Green, "Biquad Gm-C structures which use double-output transconductors," *IEEE 38th Midwest Symposium on Circuits and Systems*, vol. 1, pp. 170 –173.
- 1 V. Prodanov and M. Green, "A current-mode FDNR circuit element using capacitive gyrators," *IEEE*

*International Symposium on Circuits and Systems*, 1994, vol. 5, pp. 409 –412.

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### Book Chapters

- V. Prodanov and M. Banu, “Power Amplifier Principles and Modern Design Techniques”, Wireless Technologies: Circuits, Systems, and Devices, CRC Press, 2008, ISBN 0849379962
- M. Banu and V. Prodanov, “Ultimate VLSI Clocking Using Passive Serial Distribution,” Future Trends in Microelectronics: Up the Nano Creek, 2007, Wiley-IEEE Press, ISBN: 978-0-470-08146-4
- J. Glas, M. Banu, J. Hammerschmidt, V. Prodanov, and P. Kiss, “Wireless LAN’s”, Analog Circuit Design: Structured Mixed-Mode Design, Multi-Bit Sigma-Delta Converters, Short Range RF Circuits, Kluwer Academic Publishers, 2002, ISBN 1402072163

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### Workshops Given

- M. Banu and V. Prodanov, “Ultimate VLSI Clocking Using Passive Serial Distribution,” 2006 Advanced Research Workshop: Future Trends in Microelectronics: Up the Nano Creek, June 26-30, 2006.
- M. Banu, V. Prodanov, P. Kiss and D. Manstretta, “The Challenges of fully Integrated OFDM Transceivers for 802.11 Wireless-LAN Systems,” GIRAFE Workshop, IEEE International Solid State Circuit Conference, 2003.
- V. Prodanov, “Bluetooth IC Solutions in CMOS”, Workshop on Advances in Bluetooth Technology, IEEE International Microwave Symposium 2002, Radio Frequency Integrated Circuits, 2002.

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### Panel Participation

- Faculty Panel for New Transfer Students, Transfer SLO Days, Cal Poly, Aug. 9<sup>th</sup>, 2018
- "From Slump to Jump: Administrative Trends and Challenges", Inaugural Mid Years Engineering Experience (MYEE) Conference 2015, Texas A&M University in College Station, TX, March 22-24, 2015.
- “RF Technology Choices for Single Chip Bluetooth, HomeRF, and IEEE802.11 Wireless Connectivity”, IEEE International Microwave Symposium 2001.
- 43<sup>rd</sup> IEEE Midwest Symposium on Circuits and Systems, Lansing, MI, Aug. 8-11, 2000.

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### Guest Lectures

6. V. Prodanov, “The 4th Element,” Graduate Seminar (EE 563), Cal Poly, Oct. 5<sup>th</sup>, 2012.
5. V. Prodanov, “What can one infer from the Feature Size of a CMOS Process?” Graduate Seminar, Cal Poly, 2011.
4. V. Prodanov, “RF Power Amplifiers: Classes of Operation & Fundamental Limits to Efficiency,” Graduate Seminar, Cal Poly, Oct. 16, 2009.
3. V. Prodanov, “CMOS Technology and VLSI: Facts and Figures”, EE 431, Cal Poly, May 13<sup>th</sup>, 2009.
2. M. Banu, V. Prodanov and K. Smith, “A differential scheme for LDMOS power transistor class-AB biasing using on-chip transconductance replicas,” CISL Seminar, Columbia University, Dec. 2004
1. V. Prodanov, “Practical HP and Notch Gm-(grounded) C biquads” CISL Seminar, Columbia University, 2001.

### Courses Taught (last 5 years)

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- **EE212/EE242: Electric Circuit Analysis III**, lecture/lab ; *Spring - 2016 and 2017*
- **EE308/EE348: Analog Electronics and Integrated Circuits**, lecture/lab  
*Spring - 2013, 2014, 2015, 2017, and 2018*
- **EE409/EE449: Electronic Design**, lecture/lab  
*Fall – 2013, 2014, 2015, and 2016; Winter – 2014, 2015, 2016, and 2017*
- **EE412/EE452: Advanced Analog Circuits**, lecture/lab  
*Winter – 2013, 2014, 2015, 2016, and 2017*
- **EE470: Sensors in the age of IoT**, lecture; *Spring - 2018*
- **EE471: Networked Sensors**, lab; *Spring - 2018*

### Supervision of Senior Design and MS Thesis Work

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- Twenty (20) MS candidates
- Fifty-four (54) seniors

### EXTERNAL Contacts and Grants

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8. "Cal Poly SLO Student Engineering Design Project - Summer 2016," PI, JPL, \$13.3k , (Aug. – Dec. 2016)
7. "Reconfiguration Architecture of Hybrid Aircraft," Co-PI, Airbus Inc. \$20k, (Jan. 2014 – Jan. 2015)
6. "CalWave: Feasibility Study for National Wave Energy Test Facility", DoE, 750k, Member of project coordinated by Cal Poly's Institute for Advanced Technology and Public Policy, (June 2014 – June 2015)
5. "Smart Strip: Smart Sensing Power Bar," PI, DoE via LLNL, \$15k, (Sept. 2013 – July 2014)
4. "High efficiency portable Air Conditioner," Co-PI, DoE via LLNL, \$22.2k, (Sept. 2013 – July 2014)
3. "Design of Negative Transient Tester," Co-PI, Western Digital, \$46,000, (Sept 2013 – Sept. 2014)
2. "Underwater Instrumentation Senior Project Design," PI, MBARI, no-cost, (Sept.2013 – Sept. 2015)
1. "Development of a high voltage load switcher for the free ocean carbon enrichment (FOCE) experiment," PI, MBARI, no-cost, (March. 2011 – March 2012)

### Cal Poly INTERNAL Grants and Sponsored Research

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5. "Cold Capable Electronics for Applications in Space and other Harsh Environments" Cal Poly, *R-IDC*, PI, \$4,250, (Nov. 2012 – June 2013)
4. "Linear RF Amplifiers," Cal Poly, *California Central Coast Research Partnership (C3RP)* , PI, \$41,488.00, (Jan. 2011 – Sept. 2012)
3. "Tracking System for Marine Animals," *California Central Coast Research Partnership (C3RP)*, Co-PI, \$46,245.00, (Jan. 2011- Sept. 2012)
2. "Development of an on-line module for EE308 electronic circuits," *CENG Curricular Innovation Seed Grants Program*, 4WTU release time, (March. 2010 – March 2011).
1. "High-Efficiency Power Amplifier for Wireless Communication," *Cal Poly 2010 Extramural Funding Initiative (EFI)*, PI, \$14,000, (Feb. 2010 – Feb.2011)