

## ***CURRICULUM VITAE di Anna Richelli***

Anna Richelli è nata a Brescia (Italia) nel 1974. Si è laureata in Ingegneria Elettronica nel 2000 presso l'Università degli Studi di Brescia, dove ha anche conseguito nel 2004 il titolo di Dottore di Ricerca in "Strumentazione Elettronica". Nello stesso anno, ha vinto il concorso per una borsa di studio per attività di ricerca post-dottorato presso il Dipartimento di Elettronica per l'Automazione dell'Università di Brescia. Dal 2005 è stata ricercatrice nel settore scientifico disciplinare ING/INF 01 presso il Dipartimento di Elettronica per l'Automazione, attualmente rinominato Dipartimento di Ingegneria dell'Informazione, dell'Università di Brescia. Dal primo Giugno 2018 è Professoressa Associata presso il medesimo Dipartimento. Insegna il corso fondamentale di "Progetto di sistemi integrati analogici" nella laurea specialistica in Ingegneria Elettronica per l'Automazione ed è esercitatrice dei corsi: "Fondamenti di Elettronica Lineare", "Progetto di circuiti elettronici", "Microelettronica" e "Dispositivi Elettronici di Potenza". Le sue attività di ricerca hanno riguardato l'analisi dell'interferenza elettromagnetica nei circuiti integrati, il disegno di convertitori di tensione integrati, sia capacitivi che induttivi, e il progetto di circuiti a bassissime tensioni di alimentazione. E' autrice di numerose pubblicazioni scientifiche internazionali, comprendenti articoli in riviste e in atti di conferenze, e brevetti internazionali. E' Senior Member IEEE.

Anna Richelli was born in Brescia (Italy) in 1974. She received the D.Eng. degree from the University of Brescia, Italy, in 2000 and the Ph.D. degree in "Electronic Instrumentation" from the same University in 2004. In the same year she won a Post-Ph. D. position at the Department of Electronics for Automations (DEA) in Brescia. From 2005 to 2007 she was with the Department of Electronics for Automation (DEA) in Brescia, where she has been Assistant Professor and Research Associate in Electronics (the current name of the Department is now Dept. of Information Engineering). Since the first of June 2018 she is Associate Professor, at the same Department. She teaches the courses of "Design of integrated analog systems" and she is Assistant Professor for the courses of "Fundamental of Linear Electronics", "Electronics Circuit Design", "Microelectronics" and "Power electronic devices". Her research activities include electromagnetic interference analysis in integrated circuits, integrated voltage converters based on capacitors or on inductors, and the design of Ultra-Low Voltage analog circuits. She is author of many international scientific publications, including articles in journals and in conference proceedings, and of several international patents. She is Senior Member of the IEEE.

## **Pubblicazioni**

### ***Riviste Internazionali***

P1. Non-isolated multiple-input boost converter for energy harvesting

L Colalongo, D Dotti, A Richelli, ZM Kovács-Vajna

Electronics Letters 53 (16), 1132-1134 (2017).

P2. A Bidirectional Differential Cascode Voltage Switch DC–DC Buck-Boost Converter for Low Voltage Application

L Colalongo, A Richelli, P Cabinio, ZM Kovacs-Vajna

Journal of Low Power Electronics 13 (2), 255-262 (2017).

P3. Charge-based MOSFET model based on the Hermite interpolation polynomial

L Colalongo, A Richelli, Z Kovacs

Solid-State Electronics 130, 70-74 (2017).

P4. An EMI-Resistant Common-Mode Cancellation Differential Input Stage in UMC 180 nm CMOS

A Richelli, S Kennedy, JM Redouté

IEEE Transactions on Electromagnetic Compatibility (2017).

P5. Hermite interpolation method (HiM): compact surface potential MOSFET model based on the Hermite polynomial

L Colalongo, A Richelli, ZM Kovács-Vajna

Electronics Letters 52 (17), 1490-1492 (2016).

P6. Ultra Low Voltage and Low Power Biopotential Amplifier with High Electromagnetic Interference Immunity

A Richelli

Journal of Low Power Electronics 12 (2), 124-129 (2016).

P7. A Review of DC/DC Converters for Ultra Low Voltage Energy Harvesting

A Richelli, L Colalongo, Z Kovacs-Vajna

Journal of Low Power Electronics 12 (2), 138-149 (2016).

P8. Dickson charge pump using integrated inductors in complementary metal–oxide semiconductor technology

M Zucchelli, L Colalongo, A Richelli, ZM Kovacs-Vajna

IET Power Electronics 9 (3), 553-558 (2016).

P9. Design of an integrated tunable differential negative resistance in UMC 0.18  $\mu\text{m}$   
A Richelli, M Grassi, JM Redouté  
Microelectronics Journal 48 (2), 1-6 (2016).

P10. Susceptibility of Operational Amplifiers to Conducted EMI Injected Through the  
Ground Plane into Their Output Terminal  
A Richelli, G Delaini, M Grassi, JM Redouté  
IEEE Transactions on Reliability (2016).

P11. Unipolar Differential Logic for Large-Scale Integration of Flexible a-IGZO Circuits  
M Venturelli, F Torricelli, M Ghittorelli, L Colalongo, A Richelli, ...  
IEEE Transactions on Circuits and Systems II: Express Briefs (2016).

P12. EMI Susceptibility of a Digitally Based Analog Amplifier in a 180-nm CMOS Process  
A Coccoli, A Richelli, JM Redouté  
IEEE Transactions on Electromagnetic Compatibility 58 (4), 1236-1239 (2016).

P13. EMI susceptibility issue in analog front-end for sensor applications  
A Richelli  
Journal of Sensors (2016).

P14. Design of a Low Voltage High Symmetrical Slew Rate Opamp Based on Self Cascode  
in UMC 0.18 $\mu\text{m}$   
C Zuccarotto, A Richelli, Z Kovacs-Vajna  
Journal of Low Power Electronics 11 (4), 498-503 (2015).

P15. A 30 mV–2.5 V DC/DC converter for energy harvesting  
A Richelli, L Colalongo, Z Kovács-Vajna  
Journal of Low Power Electronics 11 (2), 190-195 (2015).

P16. Design of a folded cascode opamp with increased immunity to conducted  
electromagnetic interference in 0.18  $\mu\text{m}$  CMOS  
A Richelli, G Matig-a, JM Redouté  
Microelectronics Reliability 55 (3), 654-661 (2015).

P17. A methodological approach to EMI resistant analog integrated circuit design  
JM Redouté, A Richelli  
Electromagnetic Compatibility Magazine, IEEE 4 (2), 92-100 (2015).

- P18. A new simple P-MOS charge pump for low voltage operations  
A Richelli, L Colalongo, Z Kovács-Vajna  
Journal of Low Power Electronics 9 (4), 479-483 (2013).
- P19. Half-MOS based single-poly EEPROM cell with program and erase bit granularity  
F Torricelli, L Milani, L Colalongo, A Richelli, ZM Kovacs-Vajna  
IEEE Electron Device Letters 34 (12), 1509-1511(2013).
- P20. 100 mV–1.2 V fully-integrated DC–DC converters for thermal energy harvesting  
G Bassi, L Colalongo, A Richelli, ZM Kovacs-Vajna  
IET Power Electronics 6 (6), 1151-1156 (2013).
- P21. Half-MOS single-poly EEPROM cell in standard CMOS process  
F Torricelli, L Milani, A Richelli, L Colalongo, M Pasotti, ZM Kovacs-Vajna  
IEEE Transactions on Electron Devices 60 (6), 1892-1897 (2013).
- P22. Design of hybrid low voltage DC/DC converters based on power efficiency  
A Richelli, A Cocchi, Z Kovács-Vajna  
Journal of Low Power Electronics 9 (1), 97-102 (2013).
- P23. EMI susceptibility of DTMOS opamps  
A Richelli  
Electronics Letters 49 (2), 98-99 (2013).
- P24. Increasing EMI immunity in novel low-voltage CMOS OpAmps  
A Richelli  
IEEE Transactions on Electromagnetic Compatibility 54 (4), 947-950  
(2012).
- P25. A DC/DC boosting technique and power management for ultralow-voltage energy  
harvesting applications  
A Richelli, S Comensoli, ZM Kovacs-Vajna  
IEEE Transactions on Industrial Electronics 59 (6), 2701-2708  
(2012).
- P26. CMOS OpAmp resisting to large electromagnetic interferences  
A Richelli  
IEEE Transactions on Electromagnetic Compatibility 52 (4), 1062-1065 (2010).
- P27. EMI susceptibility in bulk-driven Miller opamp  
S Sbaraini, A Richelli, ZM Kovacs-Vajna

Electronics letters 46 (16), 1111-1113 (2010).

P28. Charge pump architectures based on dynamic gate control of the pass-transistors  
A Richelli, L Colalongo, L Mensi, A Cacciatori, ZM Kovács-Vajna  
IEEE transactions on very large scale integration (VLSI) systems 17 (7), 964-967 (2009).

P29. A 0.2-1.2V DC/DC Boost Converter for Power Harvesting Applications  
A Richelli, L Colalongo, S Tonoli, ZM Kovacs-Vajna  
IEEE transactions on power electronics 24 (6), 1541-1546 (2009).

P30. Reduction of EMI susceptibility in CMOS bandgap reference circuits  
A Pretelli, A Richelli, L Colalongo, ZM Kovcs-Vajna  
IEEE transactions on electromagnetic compatibility 48 (4), 760-765 (2006).

P31. Robust design of low EMI susceptibility CMOS OpAmp  
A Richelli, L Colalongo, M Quarantelli, ZM Kovács-Vajna  
IEEE Transactions on Electromagnetic Compatibility 46 (2), 291-298 (2004).

P32. A fully integrated inductor-based 1.8-6V step-up converter  
A Richelli, L Colalongo, M Quarantelli, M Carmina, ZM Kovacs-Vajna  
IEEE Journal of Solid-State Circuits 39 (1), 242-245 (2004).

P33. Increasing the immunity to electromagnetic interferences of CMOS OpAmps  
A Richelli, L Colalongo, ZM Kovacs-Vajna  
IEEE transactions on reliability 52 (3), 349-353 (2003).

### ***Conferenze Internazionali***

P34. Measurements of EMI susceptibility of precision voltage references  
A Richelli, L Colalongo, L Toninelli, I Rusu, JM Redouté  
Electromagnetic Compatibility of Integrated Circuits (EMCCompo), 2017.

P35. A 0.2 V 492nW VCO-based OTA with 60kHz UGB and 207  $\mu$ Vrms noise  
S Kalani, A Bertolini, A Richelli, PR Kinget  
IEEE International Symposium on Circuits and Systems (ISCAS), 2017.

P36. Increased EMI immunity in CMOS operational amplifiers using an integrated common-mode cancellation circuit  
M Grassi, JM Redoute, A Richelli  
IEEE International Symposium on Electromagnetic Compatibility (EMC), 2015.

P37. Increasing the EMI immunity of CMOS operational amplifiers using an on-chip common-mode cancellation circuit  
A Richelli, JM Redouté  
Electromagnetic Compatibility (EMC Europe), 2014.

P38. A fundamental approach to EMI resistant folded cascode operational amplifier design  
JM Redouté, A Richelli  
Electromagnetic Compatibility (EMC Europe), 2013.

P39. A 150mV-1.2 V fully-integrated DC-DC converter for Thermal Energy Harvesting  
G Bassi, L Colalongo, A Richelli, Z Kovács-Vajna  
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P40. Measurements of EMI susceptibility in ultra-low-voltage OpAmps  
A Richelli  
Electromagnetic Compatibility of Integrated Circuits (EMC Compo), 2011.

P41. Design considerations for an ultra-low voltage amplifier with high EMI immunity  
A Richelli  
IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2008.

P42. A 1.2 V-5V high efficiency CMOS charge pump for non-volatile memories  
A Richelli, L Mensi, L Colalongo, Z Kovacs, PL Rolandi  
IEEE International Symposium on Circuits and Systems (ISCAS), 2007.

P43. A 1.2-to-8V charge-pump with improved power efficiency for non-volatile memories  
A Richelli, L Mensi, L Colalongo, PL Rolandi, ZM Kovacs-Vajna  
IEEE International Solid-State Circuits Conference (ISSCC), 2007

P44. A voltage efficient pmos charge pump architecture  
L Mensi, A Richelli, L Colalongo, ZMK Vajna  
Research in Microelectronics and Electronics 2006, Ph. D., 1-4

P45. A new integrated charge pump architecture using dynamic biasing of pass transistors  
L Mensi, L Colalongo, A Richelli, ZM Kovacs-Vajna  
European Solid-State Circuits Conference (ESSCIRC), 2005.

P46. A highly efficient CMOS charge pump for 1.2 V supply voltage  
L Mensi, A Richelli, L Colalongo, ZK Vajna  
TENCON 2004. 2004 IEEE Region 10 Conference 500, 270-273

P47. A new lumped model for on-chip inductors including substrate currents  
A Savio, M Carmina, A Richelli, L Colalongo, ZM Kovacs-Vajna  
International Conference on Microelectronics (ICM), 2003.

P48. High EMI immunity CMOS opamp: design and measurements  
A Richelli, L Colalongo, Z Kovacs-Vajna, M Quarantelli  
IEEE International Symposium on Electromagnetic Compatibility, 2003.

P49. Robust design of bandgap voltage references with low EMI susceptibility  
A Pretelli, A Richelli, L Colalongo, Z Kovacs-Vajna  
IEEE International Symposium on Electromagnetic Compatibility, 2003.

P50. A fully-integrated self-tuned transformer based step-up converter  
A Savio, A Richelli, L Colalongo, ZM Kowacs-Vajna

IEEE International Symposium on Circuits and Systems (ISCAS), 2003.

P51. Increasing the immunity to electromagnetic interferences in a bandgap voltage reference

A Pretelli, A Richelli, L Colalongo, ZM Kovacs-Vajna

IEEE International Symposium on Circuits and Systems, (ISCAS), 2003.

P52. Design of an integrated CMOS operational amplifier with low probability EMI induced failures

A Richelli, L Colalongo, ZM Kovacs-Vajna, M Quarantelli

European Solid-State Circuits Conference, 2001 (ESSCIRC), 2001.

### ***Brevetti***

P54. Milani L., Torricelli F., Richelli A., Colalongo L., Kovacs-Vajna Z. (2015). Embedded Non-Volatile Memory With Single Polysilicon Layer Memory Cells Erasable Through Band To Band Tunneling Induced Hot Electron And Programmable Through Fowler-Nordheim Tunneling. U.S.A. Patent No. US9,361,982, Filed 26.01.2015, pub. date: 6.8.2015, rilasciato il 7.06.2016, STMICROELECTRONICS. Venduto.

P55. Milani L., Torricelli F., Richelli A., Colalongo L., Kovacs-Vajna Z. M. (2015). Embedded Non-Volatile Memory With Single Polysilicon Layer Memory Cells Programmable Through Channel Hot Electrons And Erasable Through Fowler-Nordheim Tunneling. U.S.A. Patent No. US9,368,209, filing date 26.01.2015, pub. date: 6.8.2015, rilasciato il 14.06.2016, STMICROELECTRONICS. Venduto.

P56. Torricelli F., Colalongo L., Richelli A., Zsolt Kovacs Vajna (2013). NVM (nonvolatile memory) device. CN203366749, STMICROELECTRONICS. Depositato da STMmicroelectronics nell'ambito di un contratto di ricerca relativo a trasferimento tecnologico.

P57. Torricelli F., Colalongo L., Richelli A., Kovacs Vajna Zs. M. (2013). Non Volatile Memory Device with Single-Polysilicion-Layer Memory Cells. US8,873,291, STM. Rilasciato il 28/10/2014. Depositato da STMmicroelectronics nell'ambito di un contratto di ricerca relativo a trasferimento tecnologico.

P58. MENSIL, RICHELLI A, COLALONGO L, Z. KOVACS VAJNA (2008). Charge Pump Circuit with Reuse of Accumulated Electrical Charge. US7,317,347, STM. Rilasciato l' 8/1/2008. Depositato da STMmicroelectronics nell'ambito di un contratto di ricerca relativo a trasferimento tecnologico.

P59. MENSIL, RICHELLI A, COLALONGO L, Z. KOVACS VAJNA (2007). Charge Pump Circuit with Dynamic Biasing of Pass Transistors. US7,248,096, STM. Rilasciato il 24/7/2007. Depositato da STMmicroelectronics nell'ambito di un contratto di ricerca relativo a trasferimento tecnologico.

P60. RICHELLI A., SAVIO A., KOVACS VAJNA Zs. (2007). Integrated Transformer Based Step-Up Converter. US7,196,915, STM. Rilasciato il 27/3/2007. Depositato da STMmicroelectronics nell'ambito di un contratto di ricerca relativo a trasferimento tecnologico.

