

Research fields:

- Digital Signal Processing
- Wavelets and filterbanks
- Design of boundary filters for finite signals
- Trigonometric Transforms
- Preconditioners for Toeplitz systems

Publications:

Research Journals in JCR:

1. N. González Prelicic, F. Pérez González, M.E. Domínguez Jiménez, "*Wavelet-packet-based subband adaptive equalization*", [Signal Processing](#) (Ed. Elsevier), Vol.81, issue 8, pp. 1641-1662, August 2001.
2. M.E. Domínguez Jiménez, N. González Prelicic, "*Linear boundary extensions for finite length signals and paraunitary two-channel filterbanks*", [IEEE TRANSACTIONS ON SIGNAL PROCESSING](#) Vol. 52, n° 11, pp. 3213-3226, November 2004.
3. M.E. Domínguez Jiménez, "*Noniterative design of 2-channel FIR orthogonal filters*", [EURASIP Journal on Advances in Signal Processing](#), doi: 10.1155/2007/45816, Vol. 2007, January 2007.
4. M.E. Domínguez Jiménez, "*A new general expression for 2-channel FIR paraunitary filterbanks*", [Signal Processing](#) (Ed. Elsevier), Vol. 88 (2008), pp. 1725-1742. doi: 10.1016/j.sigpro.2008.01.009
5. M.E. Domínguez Jiménez, P. Ferreira: "*A new preconditioner for Toeplitz matrices*", [IEEE Signal Processing Letters](#), Vol 16, n° 9, (2009), pp. 758-761. doi: 10.1109/LSP.2009.2024735
6. W. Hernández, M.E. Domínguez, G. Sansigre: "*Analysis of the Error Signal of the LMS Algorithm*", [IEEE Signal Processing Letters](#), Vol 17, n° 3 (2010), pp. 229-232. doi: 10.1109/LSP.2009.2037533
7. M.E. Domínguez Jiménez, "*General solution of certain matrix equations arising in filter design applications*", [Linear Algebra and its Applications](#) (Ed. Elsevier), Vol. 432, n° 8 (2010), pp 2077-2088. doi:10.1016/j.laa.2009.09.023
8. M.E. Domínguez Jiménez, P. Ferreira, "*Trading-off Matrix Size and Matrix Structure: Handling Toeplitz Equations by Embedding on a Larger Circulant Set*", [Digital Signal Processing](#) (Ed. Elsevier), Vol. 20 (2010), pp. 1711-1722. doi: 10.1016/j.dsp.2010.03.002.
9. M.E. Domínguez Jiménez, P. Ferreira, "*Some extremal properties of Daubechies filters and other orthonormal filters*", [Signal Processing](#) (Ed. Elsevier), Vol. 91 (2011), pp. 85-89. doi: 10.1016/j.sigpro.2010.06.011.
10. F. Cruz-Roldán, M.E. Domínguez-Jiménez, G. Sansigre-Vidal, P. Amo-López, M. Blanco-Velasco, Á. Bravo-Santos: "*On the Use of Discrete Cosine Transforms for Multicarrier Communications*", [IEEE TRANSACTIONS ON SIGNAL PROCESSING](#) , Vol. 60, n° 11, pp. 6085-6090, November 2012.

11. F. Cruz-Roldán, M.E. Domínguez-Jiménez, G. Sansigre-Vidal, José Piñeiro–Ave, M. Blanco–Velasco: “*Single-Carrier and Multicarrier Transceivers based on Discrete Cosine Transform Type-IV*”, [IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS](#), Vol. 12, nº12, pp. 6454-6463, December 2013.

Proceedings of International Conferences (with peer review):

1. M.E. Domínguez Jiménez, N. González Prelcic, ["Processing finite length signals via filter banks without border distortions: a non-expansionist solution"](#) , Proceedings of the International Conference on Acoustics, Speech and Signal Processing (ICASSP1999), Vol. III, pp. 1481-1484. Phoenix, Arizona, USA, March, 1999.
2. N. González Prelcic, F. Pérez González, M. Elena Domínguez Jiménez, "Wavelet Packet based subband adaptive equalization", Proceedings of the Fifth Bayona Workshop on Emerging Technologies in Telecommunications. Bayona, Spain, September, 1999.
3. M.E. Domínguez Jiménez, N. González Prelcic, ["Design of non-expansionist and orthogonal extension methods for tree-structured filter banks"](#) , Proceedings of the International Conference on Acoustics, Speech and Signal Processing (ICASSP 2000), Vol I, pp. 532-535. Istanbul, Turkey, June, 2000.
4. M.E. Domínguez Jiménez, N. González Prelcic, ["New orthogonal extension methods for tree-structured filter banks"](#), Proceedings of the X European Signal Processing Conference (EUSIPCO 2000), Vol. II, pp. 1073-1076. Tampere, Finland, September, 2000.
5. M.E. Domínguez Jiménez, N. González Prelcic, ["Orthogonal extensions for AR processes without artificial discontinuities for size-limited filter banks"](#) , Proceedings of the 11th IEEE Workshop on Statistical Signal Processing (SSP 2001), pp. 579-582. Singapore, August 2001.
6. M.E. Domínguez Jiménez, N. González Prelcic, ["Smooth Orthogonal Signal Extensions for Paraunitary Tree-structured Filter Banks"](#), Proceedings of the International Conference on Acoustics, Speech and Signal Processing (ICASSP2002), Orlando, Florida, USA, May 2002.
7. M.E. Domínguez Jiménez, N. González Prelcic, ["Polynomial extension method for size-limited paraunitary filter banks"](#), Proceedings of the XI European Signal Processing Conference (EUSIPCO 2002), Vol. II, pp. 545-548. Toulouse, France, September 2002.
8. M.E. Domínguez Jiménez, ["Non-expansive extension methods for biorthogonal filter banks"](#), Proceedings of the IASTED International Conference on Signal Processing, Pattern Recognition and Applications (SPPRA 2003), pp. 304-307. Rhodes, Greece, July 2003.
9. M.E. Domínguez Jiménez, ["New technique for design of 2-channel FIR paraunitary filter banks"](#), Proceedings of the IASTED International Conference

- on Signal and Image Processing (SIP 2005), pp. 220-225. Honolulu, Hawaii, USA, August 2005.
10. M.E. Domínguez Jiménez, "[Design of even and odd components of lowpass paraunitary 2-channel filters](#)", Proceedings of the 15th European Signal Processing Conference (EUSIPCO 2007), pp. 1048-1052. Poznan, Poland, September 2007.
 11. M.E. Domínguez Jiménez, "[General solution of certain matrix equations arising in filter design applications](#) ", Abstracts Book of the 15-th Conference of the International Linear Algebra Society (ILAS 2008), p. 17. Cancun, Mexico, June 2008.
 12. M.E. Domínguez, W. Hernández, G. Sansigre: "[General Block LMS Algorithm](#) ", Proceedings of the 35-th Annual Conference of the IEEE Industrial Electronics Society (IECON 2009), pp. 3371-3374. Oporto, Portugal, November 2009. doi: [10.1109/IECON.2009.5415194](https://doi.org/10.1109/IECON.2009.5415194)
 13. M.E. Domínguez, "[Matrix problems related to signal processing applications: some results and conjectures](#)", Proceedings of the II Meeting "Algebra Lineal, Análisis Matricial y Aplicaciones" (ALAMA 2010), Valencia, Spain, June 2010.
 14. M. E. Domínguez Jiménez, G. Sansigre Vidal, P. Amo López, F. Cruz Roldán: "[DCT Type-III for Multicarrier Modulation](#)", Proceedings of the 19th European Signal Processing Conference (EUSIPCO 2011), pp. 1593-1597, ISSN: 2076-1465. Barcelona, Spain, August 2011.
 15. M.E. Domínguez Jiménez, N. González Prelcic, G. Vazquez-Vilar, R. López-Valcarce: "[Design of universal multicoset sampling patterns for compressed sensing of multiband sparse signals](#)", Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2012), pp. 3337-3340. Kyoto, Japan, March 2012.
 16. M.E. Domínguez Jiménez, N. González Prelcic: "[Analysis and Design of Multirate Synchronous Sampling Schemes for Sparse Multiband Signals](#)", Proceedings of the 20th European Signal Processing Conference (EUSIPCO 2012), pp. 1184-1188. Bucarest, Romania, August 2012.
 17. P. Amo López, M.E. Domínguez Jiménez, G. Sansigre Vidal, D. Sanz de la Fuente, F. Cruz Roldán: "[Discrete cosine transform Type-IV multicarrier modulators in frequency offset channels](#)", Proceedings of the 19th IEEE International Conference on Electronics Circuits and Systems (ICECS-2012), pp. 925-928. Sevilla, Spain, December 2012.
 18. M. E. Domínguez-Jiménez, N. González-Prelcic: "[A Class of Circular Sparse Rulers for Compressive Power Spectrum Estimation](#)", Proceedings of the 21st European Signal Processing Conference (EUSIPCO 2013), Marrakech, Morocco, September 2013.
 19. M.E. Domínguez Jiménez, G. Sansigre Vidal, F. Cruz Roldán: "On the use of Zero-Padding with Discrete Cosine Transform Type-II in Multicarrier Communications", Proceedings of the 22nd European Signal Processing Conference (EUSIPCO 2014), pp. 825- 829, Lisbon, Portugal.
 20. N. González Prelcic, M.E. Domínguez Jiménez: "Circular sparse rulers based on co-prime sampling for compressive power spectrum estimation", Proceedings of the 2014 IEEE Global Communications Conference (GLOBECOM 2014), Austin, Texas, USA. December, 2014 (to appear).