

Curriculum Vitae

Francisco J. Sánchez-Sesma

Personal Information: Born in México City on October 7th, 1950

Education:

BS, Civil Engineering,	UNAM,	April, 1974
MS, Structural Engineering,	UNAM,	October, 1975
PhD Structural Engineering,	UNAM,	January, 1979

Affiliations:

Prof. Institutes of Engineering and Geophysics (UNAM) (1976-present)
Prof. Disaster Prevention Research Institute (DPRI), Kyoto University (2010)
Mexican Petroleum Institute: Chief Technology Officer (1997-1999)
Natl. University of Mexico (UNAM): Director, Institute of Engineering (1999-2003)

Research Interests:

Numerical simulation of elastic wave propagation
Scattering and diffraction of seismic waves
Seismic response of alluvial basins and topographies
Earthquake engineering and seismology
Seismic interferometry

Publications and citations:

Published 125+ papers in international journals, 32 technical reports,
Over 100 papers in conferences, and several chapters (13) in books.
Directed 20 BSc, 16 MSc and 12 PhD theses. Citations 1500, Index H 28

Membership in Professional Societies:

Mexican Society of Earthquake Engineering (President 2001-2003),
Mexican Academy of Sciences, Academy of Engineering (President 2004-2006).
Seismological Society of America, American Geophysical Union,

Distinctions:

National Researcher (SNI-Level III) Highest Level since 1990
Miguel A. Urquijo Award, Mexican Civil Engineering College (1988)
Manuel Noriega Morales Award, Science Applications and Technology, OEA (1988)
Mexican National Sciences and Arts Award (1994)
Mention for Excellence in Reviewing, *Geoph. Res Lett*, Am Geophys Union (1995)
Mexico National University Award, UNAM (1998)
Nabor Carrillo Award, Mexican Civil Engineering College (2002)
ISET Trifunac Award for Significant Contributions in Strong Motion Earthquake Studies-2002, Indian Society of Earthquake Technology, Roorke, India (2003)
Corresponding Member, Royal Academy of Engineering of Spain (2003).
Helmholtz Medal, Mexican Institute of Acoustics (2005).
Luis Esteva Medal 2011 for Contributions to Earthquake Engineering, Mexican Society of Earthquake Engineering SMIS, Aguascalientes, Mexico (2011)
Heberto Castillo Award 2012, Urban Technology, Federal District Government, Mexico.



Sánchez-Sesma 教授 防災研究所への招聘の足跡

長期滞在：

- 1988年（昭和63年）度：招聘外国人学者
昭和63年 7月 1日～昭和63年 9月30日
- 1991年（平成 3年）度：招聘外国人学者
平成 4年 3月22日～平成 4年 4月 9日
- 1994年（平成 6年）度：招聘外国人学者
平成 6年11月15日～平成 7年 2月15日
- 2010年（平成22年）度：外国人研究員（客員教授）
平成22年 4月 1日～平成22年 7月18日

短期滞在（記録のある最新のみ）：

- 2013（平成25年）度：外国人来訪者
平成25年 9月27日～平成25年10月 1日

サンチェズセスマ教授との共著論文リスト

List of collaborative research papers

with Prof. Francisco José Sánchez-Sesma

- 1) Sánchez-Sesma, F. J., Campillo, M. and Irikura, K., “A note on the Rayleigh hypothesis and the Aki-Larner method”, *Bulletin of the Seismological Society of America*, **79**, 1995-1999, 1989.
- 2) Aoi, S., Iwata, T., Irikura, K. and Sánchez-Sesma, F. J., “Waveform inversion for determining the boundary shape of a basin structure”, *Bulletin of the Seismological Society of America*, **85**, 1445-1455, 1995.
- 3) Sánchez-Sesma, F. J., Madariaga, R. and Irikura, K., “An approximate elastic two-dimensional Green’s functions for a constant-gradient medium”, *Geophysical Journal International*, **146**, 237-248, 2001.
- 4) Sánchez-Sesma, F. J., Weaver, R. L., Kawase, H., Matsushima, S., Luzón, F. and Campillo, M., “Energy Partitions among Elastic Waves for Dynamic Surface Loads in a Semi-Infinite Solid”, *Bulletin of the Seismological Society of America* **101**, 1704-1709, 2011.
- 5) Kawase, H., Sánchez-Sesma, F. J. and Matsushima, S. “The optimal use of Horizontal-to-Vertical spectral ratios of earthquake motions for velocity structure inversions based on diffuse field theory for plane waves, *Bulletin of the Seismological Society of America*, **101**, 2001-2014, 2011.
- 6) Matsushima, S., Hirokawa, T., De Martin, F., Kawase, H. and Sánchez-Sesma, F. J. “The effect of Lateral Heterogeneity on H/V Spectral Ratio of Microtremors Confirmed from Observations and Synthetics”, *Bulletin of the Seismological Society of America*, **104**, No. 1, 381-393, 2014, doi: 10.1785/0120120321
- 7) Salinas, V., Luzón, F., García-Jerez, A., Sánchez-Sesma, F. J., Kawase, H., Matsushima, S., Suarez, M., Cuellar, A. and Campillo, M. “Using Diffuse Field Theory to Interpret the *H/V* Spectral Ratio from Earthquake records in Cibeles Seismic Station, Mexico City”, *Bulletin of the Seismological Society of America*, **104**, 995-1001, 2014, doi: 10.1785/0120130202

Publications in International Journals (RI):

RI.1 Sánchez-Sesma F J and Rosenblueth E, "Hydrodynamic pressure in semicylindrical reservoir", *Journal of the Engineering Mechanics Division ASCE*, Vol 103, pp 913-919, October 1977.

RI.2 Sánchez-Sesma F J and Esquivel J A, "Ground motion on alluvial valleys under incident plane SH waves", *Bulletin of the Seismological Society of America*, Vol 69, pp 1107-1120, August 1979.

RI.3 Sánchez-Sesma F J and Rosenblueth E, "Ground motion at canyons of arbitrary shape under incident SH waves", *International Journal of Earthquake Engineering and Structural Dynamics*, Vol 7, No 5, pp 441-450, Sept-Oct 1979.

RI.4 Yang C Y, Chen S S, Wang H and Sánchez-Sesma F J, "Hydrodynamic pressure in dams with inclined face", *Journal of the Engineering Mechanics Division, ASCE*, Vol 105, No EM4, pp 717-722, August 1979.

RI.5 Sánchez-Sesma F J, "A boundary method applied to elastic scattering problems", *Archives of Mechanics, Polonia*, Vol 3, No 2, pp 167-179, March-April, 1981.

RI.6 Sánchez-Sesma F J, Herrera I and Avilés J, "A boundary method for elastic wave diffraction. Application to scattering of SH waves by surface irregularities", *Bulletin of the Seismological Society of America*, Vol 72, No 2, pp 473-490, April 1982.

RI.7 Avilés J and Sánchez-Sesma F J, "Piles as barriers for elastic waves", *Journal of the Geotechnical Engineering Division, ASCE* Vol 109, No 9, pp 1133-1146, September 1983.

RI.8 Sánchez-Sesma F J, "Diffraction of elastic waves by three-dimensional surface irregularities", *Bulletin of the Seismological Society of America*, Vol 73, No 6, pp 1621-1636, December 1983; Contribution No 648, Institut de Physique du Globe, U Pierre et Marie Curie, Paris, France.

RI.9 Sánchez-Sesma F J, Bravo M A and Herrera I, "Surface motion of topographical irregularities for incident P, SV and Rayleigh waves", *Bulletin of the Seismological Society of America*, Vol 75, No 1, pp 263-269, February 1985.

RI.10 Sánchez-Sesma F J, "Diffraction of elastic SH waves by wedges", *Bulletin of the Seismological Society of America*, Vol 75, No 5, pp 1435-1446, October 1985.

RI.11 Bravo M A and Sánchez-Sesma F J, "Trefftz's method for vibration of a rigid plate", *Journal of the Engineering Mechanics Division, ASCE*, Vol 113, No 6, pp 885-892, June 1987.

RI.12 Sánchez-Sesma F J, "Site effects on strong ground motion", *Soil Dynamics and Earthquake Engineering*, Vol 6, No 2, pp 124-132, April 1987.

RI.13 Sánchez-Sesma F J, Faccioli E and Fregonese R, "An index to measure the effects of topography on seismic ground motion intensity", *Earthquake Engineering and Structural Dynamics*, Vol 14, No 5, pp 719-737, September 1986.

RI.14 Avilés J and Sánchez-Sesma F J, "Hydrodynamic pressures on dams with non vertical upstream face", *Journal of Engineering Mechanics, ASCE*, Vol 112, pp 1054-1061, October 1986.

RI.15 Bravo M A, Sánchez-Sesma F J and Chávez-García F J, "Ground motion on Stratified alluvial deposits for incident SH waves", *Bulletin of the Seismological Society of America*, Vol 78, No 2, pp 436-450, April 1988.

RI.16 Sánchez-Sesma F J and Velázquez S A, "On the seismic response of a dipping layer", *Wave Motion*, Vol 9, pp 387-391, 1987.

RI.17 Sánchez-Sesma F J, Chávez-García F J and Bravo M A, "Seismic response of a class of alluvial valleys for incident SH waves", *Bulletin of the Seismological Society of America*, Vol 78, No 1, pp 83-95, February 1988.

RI.18 Avilés J and Sánchez-Sesma F J, "Foundation isolation from vibrations using piles as barriers", *Journal of Engineering Mechanics, ASCE*, Vol 114, No 11 pp 1854-1870, November 1988.

RI.19 Sánchez-Sesma F J, Bravo M A and Chávez-García F J, "Seismic response of a class of alluvial valleys for incident SH waves", *Seismological Research Letters*, Vol 58, No 1, pp 26, January-March 1987.

RI.20 Bravo M A, Sánchez-Sesma F J and Chávez-García F J, "Ground motion on stratified alluvial deposits for incident SH waves", *Seismological Research Letters*, Vol 58, No 1, pp 26, January-March 1987.

RI.21 Sánchez-Sesma F J, Pérez-Rocha L E and Chávez-Pérez S, "Diffraction of elastic waves by three-dimensional surface irregularities. Part II", *Bulletin of the Seismological Society of America*, Vol 79, pp 101-112, 1989.

RI.22 Avilés J and Sánchez-Sesma F J, "Atenuación de ondas elásticas con barreras de pilotes", *Revista Internacional de Métodos Numéricos para el Cálculo y Diseño en Ingeniería*, Vol 4, No 2, pp 215-228, 1988.

RI.23 Sánchez-Sesma F J, Chávez-Pérez, S, Suárez, M, Bravo, M A and Pérez- Rocha, L E, "The Mexico earthquake of September 19, 1985- On the seismic response of the Valley of Mexico", *Earthquake Spectra*, Vol 4, No 3, pp 569-589, 1988.

RI.24 Campillo M, Bard P-Y, Nicollin F and Sánchez-Sesma F J, "The Mexico earthquake of September 19, 1985- The incident wavefield in Mexico city during the great Michoacán earthquake and its interaction with the deep basin", *Earthquake Spectra*, Vol 4, No 3, pp 591-608, 1988.

RI.25 Bard P-Y, Campillo M, Chávez-García F J and Sánchez-Sesma F J "The Mexico earthquake of September 19, 1985- A theoretical investigation of large and small-scale amplification effects in Mexico City Valley", *Earthquake Spectra* Vol 4, No 3, pp 609-633, 1988.

RI.26 Rosenblueth E, Ordaz M, Sánchez-Sesma F J and Singh S K, "The Mexico earthquake of September 19, 1985- Design Spectra for Mexico's Federal District", *Earthquake Spectra*, Vol 5, No 1, pp 273-291, 1989.

RI.27 Avilés J and Sánchez-Sesma F J, "Water pressures on rigid gravity dams with finite reservoir during earthquakes" *Earthquake Engineering and Structural Dynamics*, Vol 18, pp 527-537, 1989.

RI.28 Sánchez-Sesma F J, Campillo M and Irikura K, "A note on the Rayleigh hypothesis and the Aki-Larner method", *Bulletin of the Seismological Society of America*, Vol 79, No 6, pp 1995-1999, December 1989.

RI.29 Campillo M, Gariel J C, Aki K, and Sánchez-Sesma F J, "Destructive strong ground motion in Mexico City: source, path and site effects during the great 1985 Michoacán earthquake", *Bulletin of the Seismological Society of America*, Vol 79, No 6, pp 1718-1735, December 1989.

RI.30 Bravo M A and Sánchez-Sesma F J, "Seismic response of alluvial valleys for incident P, SV and Rayleigh waves", *Soil Dynamics and Earthquake Engineering*, Vol 9, pp 16-19, January 1990.

RI.31 Sánchez-Sesma F J, "Elementary solutions for the response of a wedge-shaped medium to incident SH and SV waves", *Bulletin of the Seismological Society of America*, Vol 80, pp 737-742, June 1990.

RI.32 Reinoso E, Ordaz M and Sánchez-Sesma F J, "A note on the fast computation of response spectra estimates", *Earthquake Engineering and Structural Dynamics*, Vol 19, No 7, pp 971-976, October 1990.

RI.33 Campillo M, Sánchez-Sesma F J and Aki K, "Influence of small lateral variations of a soft surficial layer on seismic ground motion", *Soil Dynamics and Earthquake Engineering*, Vol 9, No 6, pp 284-287, November 1990.

RI.34 Sánchez-Sesma F J and Campillo M, "Diffraction of P, SV and Rayleigh waves by topographic features: a boundary integral formulation", *Bulletin of the Seismological Society of America*, Vol 81, pp 2234-2253, Dec 1991.

RI.35 Kouoh-Bille L, Sánchez-Sesma F J and Wirgin A, "Réponse resonante d'une montagne cylindrique a une onde sismique SH", *C R Acad Sci Paris* Vol 312, serie II, pp 849-854, 1991.

RI.36 Álvarez Cuevas D A, Rodríguez Zúñiga J L and Sánchez-Sesma F J, "Evaluación de la respuesta sísmica de depósitos de suelo blando mediante la superposición de haces gaussianos", *Sismodinámica* Vol 2, pp 167-180, 1991.

RI.37 Paolucci R, Suárez M and Sánchez-Sesma F J, "Fast computation of SH seismic response for a class of alluvial valleys", *Bulletin of the Seismological Society of America*, Vol 82, pp 2075-2086, October 1992.

RI.38 Chávez-Pérez S and Sánchez-Sesma F J, Discussion of subsoil geology and soil amplification in Mexico Valley, *Soil Dynamics and Earthquake Engineering*, Vol 11, pp 243-244, 1992.

RI.39 Sánchez-Sesma F J and Campillo M, "Topographic effects for incident P, SV and Rayleigh waves", *Tectonophysics* 218, pp 113-125, 1993.

RI.40 Sánchez-Sesma F J, Pérez-Rocha L E and Reinoso E, "Ground motion in Mexico City during the April 25, 1989 Guerrero earthquake", *Tectonophysics* 218, pp 127-140, 1993.

RI.41 Sánchez-Sesma F J, Ramos-Martínez J and Campillo M, "An indirect boundary element method applied to simulate the seismic response of alluvial valleys for incident P, S and Rayleigh waves", *Earthquake Engineering and Structural Dynamics*, Vol 22, pp 279-295, 1993.

RI.42 Pedersen H A, Sánchez-Sesma F J and Campillo M, "Three-dimensional scattering by two-dimensional topographies", *Bulletin of the Seismological Society of America*, Vol 84, pp 1169-1183, 1994.

RI.43 Chávez-García F J, Sánchez-Sesma F J, Campillo M and Bard P-Y, "El terremoto de Michoacán de septiembre de 1985: efectos de fuente, trayecto y sitio", *Física de la Tierra*, No 6, pp 157-200, Complutense Editorial, Madrid, 1994.

RI.44 Luzón F, Aoi S, Fah D and Sánchez-Sesma F J, "Simulation of the seismic response of a 2D sedimentary basin: A comparison between the indirect boundary element method and a hybrid technique", *Bulletin of the Seismological Society of America*, Vol 85, No 5, pp 1501-1506, 1995.

RI.45 Aoi S, Iwata T, Irikura K and Sánchez-Sesma F J, "Waveform inversion for determining the boundary shape of a basin structure", *Bulletin of the Seismological Society of America*, Vol 85, No 5, pp 1445-1455, 1995.

RI.46 Rodríguez-Zúñiga J L, Sánchez-Sesma F J and Pérez-Rocha L E, "Seismic response of shallow alluvial valleys: the use of simplified models", *Bulletin of the Seismological Society of America*, Vol 85, No 3, pp 890-899, 1995.

RI.47 Sánchez-Sesma F J and Luzón F, "Seismic response of three-dimensional alluvial valleys for incident P, S and Rayleigh waves", *Bulletin of the Seismological Society of America*, Vol 85, No 1, pp 269-284, 1995.

RI.48 Pedersen H A, Campillo M and Sánchez-Sesma F J, "Azimuth dependent wave amplification in alluvial valleys", *Soil Dynamics and Earthquake Engineering*, Vol 14, pp 289-300, 1995.

RI.49 Sánchez-Sesma F J and Luzón F, "Can horizontal P waves be trapped and resonate in a shallow sedimentary basin?", *Geophysical Journal International*, Vol 124, pp 209-214, 1996.

RI.50 Jongmans D, Demanet D, Horrent C, Campillo M and Sánchez-Sesma F J, "Dynamic soil parameters determination by geophysical prospecting in Mexico City: implication for site effect modeling", *Soil Dynamics and Earthquake Engineering*, Vol 15, pp 549-559, 1996.

RI.51 Barker J S, Campillo M, Sánchez-Sesma F J, Jongmans D and Singh S K, "Analysis of Wave Propagation in the Valley of Mexico from a Dense Array of Seismometers" *Bulletin of the Seismological Society of America* Vol 86, No 6, pp 1667-1680, 1996.

RI.52 Shapiro N M, Campillo M, Paul A, Singh S K, Jongmans D, and Sánchez-Sesma F J, "Surface-wave propagation across the Mexican Volcanic Belt and the origin of the long-period seismic-wave amplification in the Valley of Mexico", *Geophysical Journal International*, Vol 128, pp 151-166, 1997.

RI.53 Luzón F, Sánchez-Sesma F J, Posadas M A, García J M, Martín J and Romacho D M, "Diffraction of P, S and Rayleigh waves by three-dimensional topographies", *Geophysical Journal International*, Vol 129, pp 571-578, 1997.

RI.54 Sánchez-Sesma F J and Luzón F, “Reply to Comment by J L Mateos, O Novaro, T H Seligman and J Flores on ‘Can horizontal P waves be trapped and resonate in a shallow sedimentary basin?’ *Geophysical Journal International*, Vol 129, pp 215-218, 1997.

RI.55 Rodríguez-Zúñiga J L, Gaulon R, Blum P A and Sánchez-Sesma F J, “Use of in site measurements of ground inclination for determining shallow elastic parameters”, *Geotechnique*, Vol 47, pp 79-95, 1997.

RI.56 Ortiz-Alemán C, Sánchez-Sesma F J, Rodríguez-Zúñiga J L and Luzón F, “Computing topographical 3D site effects using a fast IBEM/conjugate gradient approach”, *Bulletin of the Seismological Society of America* Vol 88, No 2, pp 393-399, 1998.

RI.57 Ramos-Martínez J, Luzón-Martínez F and Sánchez-Sesma F J, "Simulación numérica de la respuesta sísmica en cuencas sedimentarias usando ecuaciones integrales. Casos realistas", *lost text*.

RI.58 Yokoi T and Sánchez-Sesma F J, “A Hybrid calculation technique of the indirect boundary element method and the analytical solutions for three-dimensional problems of topography” *Geophysical Journal International*, Vol 133, pp 121-139, 1998.

RI.59 Komatitsch D, Vilotte J-P, Vai R, Castillo-Covarrubias J M and Sánchez-Sesma F J, “The Spectral Element method for elastic wave equations: application to 2D and 3D seismic problems” *International Journal for Numerical Methods in Engineering* No 45, pp 1139-1164, 1999.

RI.60 Vai R, Castillo-Covarrubias J M, Sánchez-Sesma F J, Komatitsch D and Vilotte J-P, “Elastic wave propagation in an irregularly layered medium”, *Soil Dynamics and Earthquake Engineering*, Vol 18, pp 11-18, 1999.

RI.61 Sánchez-Sesma, F J, Vai R and Dretta E, “The Variational Indirect Boundary Element Method: A Strategy Toward the Solution of Very Large Problems of Site Response”, *Journal of Computational Acoustics* Vol 9, pp 531-541, 2001.

RI.62 Sánchez-Sesma, F J and Iturrarán-Viveros, U, “Scattering and diffraction of SH waves by a finite crack: an analytical solution”, *Geophysical Journal International*, Vol 145, pp 749-758, 2001.

RI.63 Sánchez-Sesma F J, Madariaga R and Irikura K, “An approximate elastic two-dimensional Green’s functions for a constant-gradient medium”, *Geophysical Journal International*, Vol 146, pp 237-248, 2001.

RI.64 Luzón F, Al Yuncha Z, Sánchez-Sesma F J and Ortiz-Alemán C, “A numerical experiment on the horizontal to vertical spectral ratio in flat sedimentary basins”, *Pure and Applied Geophysics*, No 158, pp 2451-2461, 2001.

RI.65 Avilés J, Suárez M and Sánchez-Sesma F J, “Effects of wave passage on the relevant dynamic properties of structures with flexible foundation”, *Earthquake Engineering and Structural Dynamics*, Vol 31, pp 139-159, 2002.

RI.66 Ampuero J-P, Vilotte J-P and Sánchez-Sesma F J, “Nucleation of rupture under slip dependent friction law: simple models of fault zone”, *Journal of Geophysical Research. Solid Earth*, Vol. 107, No. B12, doi 10.1029/2001JB000452 (2002).

- RI.67 Montalvo-Arrieta J C, Sánchez-Sesma F J and Reinoso E, “A virtual reference site for the valley of Mexico”, *Bulletin of the Seismological Society of America* Vol. 92, pp 1847-1854 (2002).
- RI.68 Gil-Zepeda S A, Montalvo-Arrieta J C, Vai R and Sánchez-Sesma F J, “A hybrid indirect boundary element-discrete wave number method applied to simulate the seismic response of stratified alluvial valleys”, *Soil Dynamics and Earthquake Engineering* Vol 23, pp 77-86 (2003).
- RI.69 Luzón F, Ramírez-Guzmán L, Sánchez-Sesma F J and Posadas A, “Simulation of the Seismic Response of Sedimentary Basins with Constant-Gradient of Velocity for Incident SH Waves”, *Pure and Applied Geophysics* Vol 161, pp 1533–1547 (2004).
- RI.70 Luzón F, Ramírez L, Sánchez-Sesma F J and Posadas A, “Propagation of SH elastic waves in deep sedimentary basins with an oblique velocity gradient”, *Wave motion*, No. 38, pp 11-23 (2003), doi:10.1016/S0165-2125(03)00012-X.
- RI.71 Montalvo-Arrieta J C, Reinoso-Angulo E and Sánchez-Sesma F J, “Observation of strong ground motion at hill sites in Mexico City from recent earthquakes”, *Geofísica Internacional* Vol 42, No 2, 205-217 (2003).
- RI.72 Suarez M, Avilés J and Sánchez-Sesma F J, “Response of L-shape rigid foundations embedded in a uniform half-space to traveling seismic waves”, *Soil Dynamics and Earthquake Engineering*, Vol 22, pp 625-637 (2002).
- RI.73 Del Valle-García R and Sánchez Sesma FJ, “Wave scattering effects in elastic percolation models”, *Molecular Physics*, Vol 100, No 19, pp 3167-3172 (2002).
- RI.74 Gil-Zepeda S A, Luzón F, Aguirre J, Morales J, Sánchez-Sesma F J and Ortiz-Alemán C, “3D Seismic response of the Deep Basement Structure of the Granada Basin (Southern Spain)”, *Bulletin of the Seismological Society of America*, Vol 92, No. 6, pp 2163-2176 (2002).
- RI.75 Luzón F, Palencia V J, Morales J, Sánchez-Sesma F J and García J M, “Evaluation of site effects in sedimentary basins”, *Física de la tierra*, Vol 14, pp 183-214 (2002).
- RI.76 Sánchez-Sesma F J, Palencia V J and Luzón F, “Estimation of local site effects during earthquakes: an overview”, *ISSET Journal of Earthquake Technology*, Vol 39, No 3, pp 167-193 (2002).
- RI.77 Álvarez-Rubio S, Sánchez-Sesma F J, Benito J J and Alarcón E, “The direct boundary element method: 2D site effects assessment on laterally varying layered media (methodology)”, *Soil Dynamics and Earthquake Engineering*, Vol 24, No 2, pp 167-180 (2004).
- RI.78 Montalvo-Arrieta J C, Reinoso E, Aguirre J and Sánchez-Sesma F J, “Comment on Evidence of the dominance of higher-mode surface waves in the lake-bed zone of the Valley of México” by Shapiro *et al.* (2001)”, *Geophysical Journal International* , Vol 156, No. 2, pp 352-358 (2004).
- RI.79 Del Valle-García R and Sánchez-Sesma F J, “Rayleigh waves modeling using an elastic lattice model”, *Geophysical Research Letters*, Vol. 30, No 16-1866, doi: 10.1029/2003 GL017600, pp 12.1-12.4 (2003).

- RI.80 Iturrarán-Viveros U, Sánchez-Sesma F J and Janod F, “Scattering of elastic waves in heterogeneous media using the direct solution method”, *Geophysical Journal International*, Vol. 156, pp 222-236 (2004).
- RI.81 Luzón F, Gil-Zepeda S A, Sánchez-Sesma F J and Ortiz-Alemán C, “Three-dimensional simulation of ground motion in the Zafarraya Basin (Southern Spain) up to 1.335 Hz under incident plane waves”, *Geophysical Journal International*, Vol 156, pp 584-594 (2004).
- RI.82 Álvarez-Rubio S, Benito J J, Sánchez-Sesma F J and Alarcón E, “The use of direct boundary element method for gaining insight into complex seismic site response”, *Computers and Structures*, Vol 83, pp 821-835 (2005).
- RI.83 Rodríguez-Castellanos A, Luzón F and Sánchez-Sesma F J, “Diffraction of seismic waves in an elastic, cracked halfplane using a boundary integral formulation”, *Soil Dynamics and Earthquake Engineering*, 25 (2005) 827-837.
- RI.84 Ávila-Carrera R and Sánchez-Sesma F J, “Scattering and diffraction of elastic P- and S-waves by a spherical obstacle: A review of the classical solution”, *Geofísica Internacional*, Vol. 45, No. 1, pp. 3-21 (2006).
- RI.85 Rodríguez-Castellanos A, Sánchez-Sesma F J, Rodríguez J E, Hernández L H and Saucedo Meza I, “Diffraction of elastic waves by near surface cracks”, *Revista Mexicana de Física*, Vol 51, SUPPLEMENT 1, pp 43-46 (2005).
- RI.86 Mercerat E D, Vilotte J P and Sánchez-Sesma F J, “Triangular Spectral Element simulation of 2D elastic wave propagation using unstructured triangular grids”, *Geophysical Journal International*, Vol 166, pp 679-698 (2006).
- RI.87 Sánchez-Sesma F J and Iturrarán-Viveros U, “The classic Garvin's problem revisited”, *Bulletin of the Seismological Society of America*, Vol 96, No 4A, pp 1344-1351 (Ago 2006), doi: 10.1785/0120050174.
- RI.88 Iturrarán-Viveros U, Vai R and Sánchez-Sesma F J, “Scattering of elastic waves by a 2D crack using the Indirect Boundary Element Method (IBEM)”, *Geophysical Journal International*, Vol 162, pp 927-934 (Sept 2005) doi:10.1111/j.1365-246X.2005.02699.x.
- RI.89 Sánchez-Sesma F J and Campillo M, “Retrieval of the Green function from cross-correlations: The canonical elastic problem”, *Bulletin of the Seismological Society of America*, Vol 96, No 3, pp1182-1191, (2006) doi:10.1785/0120050181.
- RI.90 Rodríguez-Castellanos A, Sánchez-Sesma F J, Luzón F and Martin R, “Multiple scattering of elastic waves by subsurface fractures and cavities”, *Bulletin of the Seismological Society of America*, Vol 96, No 4A, pp 1359-1374 (August 2006) doi: 10.1785/0120040138.
- RI.91 Sánchez-Sesma F J, Pérez-Ruiz J A, Campillo M and Luzón F, “Elastodynamic 2D Green function retrieval from cross-correlation: Canonical inclusion problem”, *Geophysical Research Letters*, Vol 33, L13305, (2006) doi:10.1029/2006GL026454.

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