

Director of Center for Research and Technological Innovation **CIITEC**, which belongs to the National Polytechnic Institute **IPN** of Mexico.



Sebastián Díaz de la Torre,
Eng. Dr. Director



Personal Data

Born

August 21st, 1964, Mexico.

Cel. Phone

+52 (55) 3559 4245

E-mails

sediazt@ipn.mx

sediaz@yahoo.com.mx

www

www.ciitec.ipn.mx

LinkedIn

www.linkedin.com/sebastiandiaz

Key Skills

Innovation Management

Analytical Thinking

Advanced Materials Design

Research & Academic Strategies

Leader on Spark Plasma Sintering

High Performance Cements/Conc.



Experience

2017-present Director of **CIITEC-IPN, Mexico.**

2016 - 2017 Promoter Professor between the **University of Brno (UB), CEITEC of Czech Republic** and **IPN, Mexico** to sign an Academic Collaboration-Agreement, valid till **2021**.

2016 - 2017 Promoter Professor between the **University of Brno, CEITEC of Czech Republic** and **Autonomous University of Zacatecas (UAZ), Mexico** to sign an Academic Collaboration-Agreement, valid till **2021**.

2016 - 2017 Main Academic Link between the **Czech Consulate in Mexico** and the **Zacatecas State of Mexico**, as to bring together political / academic authorities (**UB-CEITEC**) of both countries to trigger academic, social and business opportunities.

2015 – 2017 Dean Professor at CIITEC – IPN.

2004-present Professor / Researcher at CIITEC – IPN.
Consultor of private-enterprises / teaching graduate students on topics such as:

- Advanced composite materials,
- Advanced ceramics (cermets),
- Powder processing & sintering,
- Mechanical Alloying MA,
- Spark Plasma Sintering,
- High performance concrete / cements,
- Mechanical properties of alloys,
- Human development,
- Innovation & leadership.

2014-present External Referee for the **GACR of Czech Republic.**

Director of Center for Research and Technological Innovation **CIITEC**, which belongs to the National Polytechnic Institute **IPN** of Mexico.



Sebastián Díaz de la Torre, Eng. Dr.



Personal Data

Born

August 21st, 1964, Mexico.

Cel. Phone

+52 (55) 3559 4245

E-mails

sediaz@ipn.mx

sediaz@yahoo.com.mx

www

www.ciitec.ipn.mx

LinkedIn

www.linkedin.com/sebastiandiaz

Key Skills

Innovation Management

Analytical Thinking

Advanced Materials Design

Research & Academic Strategies

Leader on Spark Plasma Sintering

High Performance Cements/Conc.



Experience

- 2013 - 2014 External Advisor** for the National Counsel of Science & Tech. of **Senate of the Mexican Republic**.
- 2000-present External Referee** for the National Counsel of Science & Tech. of the **Mexican Republic**, CONACYT.
- 2000 - 2004 Professor / Researcher** at the Advanced Materials Research Center CIMAV, Chihuahua, **Mexico**.
- 2001 - 2003 Thermodynamics Teacher** at Instituto Tecnológico de Estudios Superiores de Monterrey ITESM, Campus Chihuahua, **Mexico**.
- 1998 - 2000 Invited Professor** at the Technology Research Center of Osaka Prefecture, **TRI-Osaka, Japan**. A Japanese Government Institute. Working on a specific project on Ceramic Ball-Bearings. Sponsored by **NEDO-Japan**.
- 1995 - 1998 Invited Researcher** at the Technology Research Center of Osaka Prefecture, **TRI-Osaka, Japan**. A Japanese Government Institute. Working on a specific project on Fine Ceramic Materials. Sponsored by **Fine Ceramics Group**.
- 1998 - 1998 Invited Researcher** at the “Materials and Process Simulation Center (MSC)” – Beckman Institute of the California Institute of Technology **Caltech. Pasadena, CA., USA**. May 1998.
- 1992 - 1994 Thermodynamics-Assistant-Teacher** at the **Materials Science and Engineering**. Dept. of Energy Sci. and Engineering of **Kyoto, University, Japan**.
- 1989 - 1990 Electrochemistry-Assistant-Teacher** at Escuela Superior de Ingeniería Química e Industrias Extractivas **ESIQIE-IPN, Mexico**.

Director of Center for Research and Technological Innovation **CIITEC**, which belongs to the National Polytechnic Institute **IPN** of Mexico.



Sebastián Díaz de la Torre, Eng. Dr.



Personal Data

Born

August 21st, 1964, Mexico.

Cel. Phone

+52 (55) 3559 4245

E-mails

sediaz@ipn.mx

sediaz@yahoo.com.mx

www

www.ciitec.ipn.mx

LinkedIn

www.linkedin.com/sebastiandiaz

Key Skills

Innovation Management
Analytical Thinking
Advanced Materials Design
Research & Academic Strategies
Leader on Spark Plasma Sintering
High Performance Cements/Conc.



Education

- 1992 - 1995** **Eng. Dr. Materials Science and Engineering.** Department of Energy Science and Engineering of **Kyoto, University, Japan**. Thesis: Metastable Alloy Phase Formation in Immiscible Metallic Systems Prepared by Mechanical Alloying.
- 1991 - 1992** **Research Student** at Dept. of Energy Science and Eng. of **Kyoto, University, Japan**. Exptal. Work: Al₂O₃-Cr₂O₃-, and NaCl-KCl Solid Solutions Prepared by Mechanical Alloying.
- 1990 - 1991** **Japanese Language Student** at **Osaka Foreign Languages University, Japan**. Also learning the Japanese Culture.
- 1987 - 1990** **M.Sci. Metallurgical Engineering.** Escuela Superior de Ingeniería Química e Industrias Extractivas ESIQIE – IPN, **Mexico**. Thesis: Electrochemical Behavior of Metallic Glasses.
- 1982 - 1987** **Bachelor on Chemical Engineering.** Autonomous **University of Zacatecas UAZ, Chemistry Sci. School, Zac., Mexico**.

Academic Productivity

Book Chapter

Leonel Ceja-Cárdenas, José Lemus-Ruiz, Sebastián Díaz-de-la-Torre, Egberto Bedolla-Becerril. **Chapter 4: Influence of the Additives Amount Upon SPS-Sintering, Metal Joining, and High Temperature Oxidation of Si₃N₄-Ceramics.** E. J.Hierra, J. Angel-Salazar (Eds.). Title: Silicon Nitride: Synthesis, Properties and Applications (2012). 1. 4. (pp. 101 - 123). **USA**. Nova Publish.



Sebastián Díaz de la Torre, Eng. Dr.

Academic Productivity

Book Chapter

C.M. López-Badillo, J. López-Cuevas, S. Díaz de la Torre. **Chapter 38. Síntesis por Reacción en el Estado Sólido de Celsiana de Estroncio a Partir de Mezclas de SrCO_3 , Al_2O_3 y Ceniza Volante Activadas Mecánicamente.** Book Title: Desarrollos Recientes en Metalurgia, Materiales y Medio Ambiente. Eds. Martin I. Pech-Canul, Ana Leal-Cruz, Juan C. Rendón-Ángeles, Carlos A. Gutiérrez-Chavarría, Jorge López-Cuevas, José L. Rodríguez-Galicia. Ed. Cinvestav IPN. Volume 1 (2012), **México**. Pages. 429. ISBN 978-607-9023-17-1.

International Publications (only shown 12 representatives).

- Current Assisted Extrusion of Metallic Alloys: Insight into Microstructure Formation and Mechanical Properties. E. Novitskaya, T. A. Esquivel Castro, G.R. Dieguez Trejo, A. Kritsuk, J.T. Cahill. S. Díaz de la Torre and O. Graeve. *Materials Sci. & Eng. A* 717 (2018) 62 – 67.
- High strength, biodegradable and cytocompatible alpha tricalcium phosphate-iron composites for temporal reduction of bone fractures. E.B. Montúfar, M. Casas Luna, M. Horynová, S. Tkachenko, Z. Fohlerová, S. Díaz de la Torre, K. Dvorak, L. Celko, J. Kaiser. *Acta Biomaterialia* 70, (2018) 293 – 303.
- On the Preparation of Advanced Materials via Pulsed Electric Current Sintering Procedures. S. Díaz de la Torre, L. Celko, M. Casas Luna, E.B. Montufar. *Solid State Phenomena*. Trans Tech Pub. Vol. 258 (2017), pp. 436-439.
- Tricalcium Phosphate - Magnesium Interface: Microstructure and Properties. M. Casas Luna, E.B. Montúfar, M. Horynová, P. Gejdos, L. Klakurková, S. Díaz de la Torre, J. Kaiser, L. Celko. *Solid State Phenomena*. Trans Tech Pub. Vol. 258 (2017), pp. 412-415.
- Fracture Mechanism of Interpenetrating Iron-Tricalcium Phosphate Composite. M. Horynová, M. Casas Luna, E.B. Montufar, S. Díaz de la Torre, L. Celko, L. Klakurková, G. Diéguez-Trejo, K. Dvorak, T. Zikmund, J. Kaiser. *Solid State Phenomena*. Trans Tech Pub. Vol. 258 (2017), pp. 333-336.
- Spark Plasma Sintering of Load-Bearing Iron–Carbon Nanotube-Tricalcium Phosphate CerMets for Orthopaedic Applications. E. B. Montufar, M. Horynová, M. Casas-Luna, S. Díaz de la Torre, L. Celko, L. Klakurková, Z. Spatz, G. Diéguez-Trejo, Z. Fohlerová and J. Kaiser. *JOM*, Vol. 68, Issue 4, (2016), pp. 1134-1142.
- Synthesis and structural characterization of manganese olivine lithium phosphate. Joel O. Herrera Robles, Luis E. Fuentes Cobas, Sebastián Díaz de la Torre, Héctor Camacho Montes, José T. Elizalde Galindo, Perla E. García Casillas, Claudia A. Rodríguez González, Lorena Álvarez Contreras. *Journal of Alloys and Compounds*, 643 (2015) S2 36 – S2 40.



Sebastián Díaz de la Torre, Eng. Dr.

Academic Productivity

International Publications (only shown 12 representatives).

- Temperature Effect on the Microstructural Development of Al-Ni Layered Binary Couples Produced by an Unconventional Method. L. Celko, S. Díaz de la Torre, L. Klakurkova, J. Kaiser, B. Smetana, K. Slamecka, M. Zaludova, J. Svejcar. Surface & Coatings Technology 258 (2014) Pag. 95-101.
- High energy milling (HEM) of Mexican minerals to produce high performance concrete (HPC). María Teresa Fuentes, Araceli Zúñiga, Manuela Díaz, Enrique Rocha, Sebastián Díaz. Revista Ingeniería de Construcción RIC, Chile. Vol. 29, No.2 (2014).
- Mechano-Synthesized Orthoferrite Starting from Wüstite Assisted by SPS. Claudia Alicia Cortés-Escobedo, Félix Sánchez-De Jesus, Ana María Bolarín-Miró, Sophie Nowak, Elizabeth Piazzini Juárez-Camacho, Sebastián Díaz de la Torre, Raúl Valenzuela. Advances in Materials Physics and Chemistry, (2014) 4, 43-49. Published Online March 2014 in SciRes.
- Development and Characterization of Cementing Composites with Blast Furnace Slag Replacement. Reyna Sánchez-Ramírez, Manuela Díaz-Cruz, Sebastián Díaz-de la Torre and Enrique Rocha-Rangel. Advanced Materials Research Vol. 976 (2014) pp 246-250 (2014) Trans Tech Publications, Switzerland.
- Interfacial behavior in the brazing of silicon nitride joint using a Nb-foil interlayer. L. Ceja-Cárdenas, J. Lemus-Ruíz, S. Díaz-de la Torre, R. Escalona-González. Journal of Materials Processing Technology 213 (2013). Pp. 411–417.
- **The total number of international publications released by Dr. Sebastián Díaz de la Torre, so far is nearly 100 papers.**
- **The total number of international citations of published papers by Dr. Sebastián Díaz de la Torre, nearly exceeds 1000.**

International Conferences (as invited speaker)

Int. Conferences (only shown 9).

- Construction of the largest “Virgin of Guadalupe” statue in the world using High Performance Concrete. Congress OZ-2018, **Siegen, Germany**, March 3, 2018.



Sebastián Díaz de la Torre, Eng. Dr.

International Conferences (as invited speaker)

Int. Conferences (only shown 9).

- Sinterización de polvos cerámicos y/o metálicos usando corriente eléctrica - Estado del arte y perspectiva de la técnica "Spark Plasma Sintering" - VI Congreso de Pulvimetalurgia – I Congreso Iberoamericano de Pulvimetalurgia. **Cd. Real, Spain**, June 9th, 2017.
- On the Preparation of Advanced Materials via Pulsed Electric Current Sintering Procedures. 8th International Conference on Materials Structure & Micromechanics of Fracture. **Brno, Czech Republic**, June 2017.
- Processing of Alternative High Performance Concrete – An Energy Saving Route. UC Mexico, **UC San Diego USA**, Jacobs School of Eng. May, 2016.
- M. Casas Luna, Ladislav Celko, M.C. Piña Barba, R.R. Ambriz Rojas and Sebastian Díaz de la Torre. "Microhardness testing of HA-CNT composite powder sintered by SPS". 21st. International Symposium on Metastable, Amorphous and nanostructured Materials, ISMANAM 2014. **Cancun, Mexico**. June 29-July 4th. 2014.
- S. Díaz de la Torre, E. B. Montufar, M. Casas Luna, R. Tenorio, C. Piña Barba, E. Ruperez, J.M. Manero, F. Javier Gil. "Hydroxiapatite/titanium composites processed by spark plasma sintering". 26th Symposium and Annual Meeting of the International Society for Ceramics in Medicine. **Barcelona, Spain**. 6-7th November, 2014.
- "Spark Plasma Sintering Review". Materials Sci. Seminar Series of Dr. O. Graeve. Alfred University. **Alfred, New York, USA**. Sept. 12, 2012.
- "Spark Plasma Sintering of Zentallium - Characterization". 3rd German-Japanese Symposium on Nanostructures. **Wenden, Germany**. February 28 - March 02, 2010.
- "The State of the Art of Spark Plasma Sintering – A General Review". Ristumeikan University. **Kyoto, Japan**. March 1-3, 2009.



Sebastián Díaz de la Torre, Eng. Dr

Awards and Recognitions

- **Mexican Researcher Membership, Category 2** (max. high rank is level-3), since 1999 – present.
- **Dean Professor**, CIITEC – IPN. **Mexico City, Mexico**. 2015 – 2017.
- **Member of the Honor Commission of IPN, Mexico**. 2011-2012.
- **Veta de Plata (Silver Vein) Award**. Given by the Fondo Cultural Zacatecas A.C. (**Cultural Fund of Zacatecas State**), under the category “**Contribution to Science and Technology**”. **Guadalupe City of Zacatecas State, Mexico**. December 2011.
- “**The Marquis Who’s Who in Science and Engineering**”, Publications Board. Nominated in 2015. **USA**. <http://www.marquiswhoswho.com>
- “**The Marquis Who’s Who in Science and Engineering**”, Publications Board. Nominated in 2004. **USA**. <http://www.marquiswhoswho.com>
- **Expert Professor**, recognized by the **Japanese International Cooperation Agency JICA-Japan**.
- **Best Poster Award**, Powder Metallurgy of Japan. **Japanese Powder Metallurgy Society**, 1997.

Organizer/Steering Committees / Academic Congresses

- **Main Organizer**. “Preparing the XXI Century Young Professionals”, Alejo Peralta Theater-IPN. Nearly 800 people. August , 2018. **Mexico City, Mexico**.
- **Main Organizer**. “IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, y XXIV International Materials Research Congresses Cancun 2000 – 2009, y 2015. Chairman/Symposia on “Technological Innovation and its Influence on Materials Processing”. The International Materials Research Congress, Annually organized by the Mexican Society of Materials SMM. **Cancun, Mexico**.
- **Assistant Organizer**. “The 2nd International Symposium on the Science of Eng. Ceramics, EnCera’98” held in **Osaka, Japan** (6 to 9 Sept., 1998).
- **Assistant Organizer**. “International Congress on Heat treatment of Materials. Heat & Surface-92,” held in **Kyoto, Japan** (17 to 20 Nov., 1992).
- **Assistant Organizer**. “International Symposium on Mechanical Alloying (ISMA),” held in **Kyoto, Japan** (7 to 10 May 1991).
- **Assistant Organizer**. “International Symposium on Processing, Designing and Properties of Advanced Engineering Materials ISAEM-97”, held in **Toyohashi, Japan** (29 to 31 October, 1997).



Sebastián Díaz de la Torre, Eng. Dr

Mexican Projects (as leader)

- National Counsel of Science & Tech. of the Mexican Republic, CONACYT. “Spark Plasma Extrusion of Advanced Materials”. Project No. 1777700. **Mexico City, Mexico**. January 2013 – 2016.
- Private Mexican Company. Grupo Cementos de Chihuahua. “Sub-micron Refinement of Portland Cement Particles to Strengthen Concrete”. **Chihuahua City, Mexico**. October 2001 - 2002.
- Science and technology Institute of Mexico City. “Cermets Alloys with Superplastic Properties”. **Mexico City, Mexico**. January 2009 – 2010.
- National Science Foundation NSF-USA and National Counsel of Science & Tech. of the **Mexican Republic**, CONACYT. “A Novel Synthesis and Sintering Process for Nanostructured Oxide and Carbide Ceramic Composites”. **Mexico City, Mexico**. April 2006 – 2008.
- National Counsel of Science & Tech. of the Mexican Republic, CONACYT. “Structural Ceramics Preparation ZrO_2 - MgO -, and Al_2O_3 -base, Attaining Fine Microstructure and High Mechanical Strength”. **Mexico City, Mexico**. January 2001 – 2004.
- **SIP-IPN 20120664**: “Morteros de cemento de alto desempeño con tamaño de partícula fina”. IPN. August 2012.
- **SIP-IPN 20110558**: “Sinterizado por SPS y caracterización mecánica de compósitos cermets con propiedades plásticas, Parte-2”. August 2011.
- **SIP-IPN 20101175**: “Sinterizado por SPS y caracterización mecánica de compósitos cermets con propiedades plásticas, Parte-1”. August 2010.
- **SIP-IPN 20091642**: “Comportamiento mecánico de materiales FGM sinterizados por arco eléctrico SPS”. August 2009.
- **SIP-IPN 20082874**: “Preparación de polvos compósitos nanométricos cermets mediante molienda de alta energía HEM y sinterizados por plasma SPS”. August 2008.
- **SIP-IPN 20071281**: “Compósitos avanzados preparados por molienda de alta energía y sinterizados por arco eléctrico SPS”. August 2007.
- Several more...



Sebastián Díaz de la Torre, Eng. Dr

Graduated Students

DOCTOR (total 6)

- Student: Ma. Teresa Fuentes Romero. Thesis: Mecanoactivación del Cemento Portland y Uso de Materiales Suplementarios en la Producción de Concreto de Alto Desempeño. CIITEC-IPN. 2017.
- Student: Reyna Sánchez Ramírez. Thesis: Cementos especiales conteniendo escoria de alto horno para pozos petroleros. ESQIE-IPN. 2012.
- Student: Hernán de la Garza Gutiérrez. Thesis: Modelación matemática de la hidratación del cemento Pórtland ultrafino. IPN. 2010.
- Student: Juan Carlos Arteaga Arcos. Thesis: Comportamiento mecánico y caracterización de morteros elaborados con cemento Pórtland ultrafino. IPN. Dec. 2009.
- Student: Alfredo Manzo Preciado. Thesis: Equipo para Sinterizado de Polvos Metálicos-Cerámicos Finos por Arco Eléctrico y Templado Rápido. CIDESI, Querétaro. Feb. 2008.
- Student: Rosa Alicia Saucedo Acuña. Thesis: Resistencia a la Corrosión en Alta Temperatura de Aleaciones Cr-Alúmina y Nb-Alúmina Preparadas por Aleado Mecánico y Sinterizadas por SPS. CIMAV, Chihuahua. Aug. 2003.

MASTER IN SCIENCE (total 15)

- Student: Juan Miguel Infante Ortíz. Thesis: Consolidación de Partículas de Cobre por Extrusión y Arco Eléctrico CIITEC-IPN, D.F. Aug. 2013.
- Student: Mariano Casas Luna. Thesis: Perspectivas de Procesamiento con la Técnica de Sinterizado por Arco Eléctrico, SPS. CIITEC-IPN, D.F. Dec. 2014.
- Student: Antonio Salvador Zea. Thesis: Extrusión asistida por arco eléctrico SPE de polvo de Al para obtención de barras. Dec. 2015.
- Student: Ricardo del Angel Laureano. Thesis: Mecano-activación de harina para cemento y efecto de la concentración de fluorita en la temperatura de clinkerización.
- Student: Fanny Viviana González Guzmán. Fecha de Graduación: Sep. 2016. Thesis: Infiltración de magnesio en estructuras porosas de hidroxiapatita por la técnica CAIS.
- Some more ...

BACHELOR (total 15)