CURRÍCULUM

Xing Xuan

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Extracto de currículum

Soy un investigador altamente reconocido con un Doctorado en Ingeniería Eléctrica y amplia experiencia en sensores portátiles para deportes y salud. Mi cargo actual es Profesor Contratado Doctor en la UCAM. Antes de este puesto, ocupé cargos como investigador postdoctoral en KTH, el Instituto Real de Tecnología de Suecia, y profesor asistente visitante en la Universidad de Ciencia y Tecnología de Pyongyang, Corea del Norte. A lo largo de mi carrera, me he concentrado en desarrollar tecnologías de detección innovadoras utilizando fabricación micro/nano, física y química. Tengo un sólido historial de publicaciones, con más de 29 artículos (Citas: 2049, índice h: 17, índice i10: 20) publicados en revistas de primer nivel.

Líneas de investigación

- En UCAM-SENS, dirijo la investigación en sensores portátiles para deportes y salud. Mi trabajo implica aplicar mi experiencia en sensores electroquímicos y parches de piel portátiles para desarrollar biosensores de sudor innovadores para monitorear el rendimiento atlético y las condiciones de salud. En particular, me enfoco en medir iones y biomoléculas cruciales para monitorear el rendimiento del ejercicio y el estado de salud. He realizado contribuciones a los campos interdisciplinarios de electrónica, ingeniería eléctrica, biología y química.

Publicaciones

- Wang, Q., Molinero-Fernandez, Á., Wei, Q., Xuan, X., Konradsson-Geuken, Å., Cuartero, M., & Crespo, G. A. (2024). Intradermal Lactate Monitoring Based on a Microneedle Sensor Patch for Enhanced In Vivo Accuracy. ACS sensors.

- Molinero-Fernandez, Á., Wang, Q., Xuan, X., Konradsson-Geuken, Å., Crespo, G. A., & Cuartero, M. (2024). Demonstrating the Analytical Potential of a Wearable Microneedle-Based Device for Intradermal CO2 Detection. ACS sensors, 9(1), 361-370.
- Xuan, X., Chen, C., Pérez-Ràfols, C., Swarén, M., Wedholm, L., Cuartero, M., & Crespo, G. A. (2023). Front Cover: A Wearable Biosensor for Sweat Lactate as a Proxy for Sport Performance Monitoring (Anal. Sens. 4/2023). Analysis & Sensing, 3(4), e202300026.
- Xuan, X., Chen, C., Molinero-Fernandez, A., Ekelund, E., Cardinale, D., Swarén, M., ... & Crespo, G. A. (2023). Fully integrated wearable device for continuous sweat lactate monitoring in sports. ACS sensors, 8(6), 2401-2409.
- Van Hoovels, K., Xuan, X., Cuartero, M., Gijssel, M., Swarén, M., & Crespo, G. A. (2021). Can wearable sweat lactate sensors contribute to sports physiology?. ACS sensors, 6(10), 3496-3508.
- Xuan, X., Perez-Rafols, C., Chen, C., Cuartero, M., & Crespo, G. A. (2021). Lactate biosensing for reliable on-body sweat analysis. ACS sensors, 6(7), 2763-2771.
- Xuan, X., Hui, X., Yoon, H., Yoon, S., & Park, J. Y. (2021). A rime ice-inspired bismuth-based flexible sensor for zinc ion detection in human perspiration. Microchimica Acta, 188, 1-11.
- Hui, X., Sharifuzzaman, M., Sharma, S., Xuan, X., Zhang, S., Ko, S. G., ... & Park, J. Y. (2020). High-performance flexible electrochemical heavy metal sensor based on layer-by-layer assembly of Ti3C2T x/MWNTs nanocomposites for noninvasive detection of copper and zinc ions in human biofluids. ACS Applied Materials & Interfaces, 12(43), 48928-48937.
- Yoon, H., Nah, J., Kim, H., Ko, S., Sharifuzzaman, M., Barman, S. C., ... & Park, J. Y. (2020). A chemically modified laser-induced porous graphene based flexible and ultrasensitive electrochemical biosensor for sweat glucose detection. Sensors and Actuators B: Chemical, 311, 127866.
- Barman, S. C., Zahed, M. A., Sharifuzzaman, M., Ko, S. G., Yoon, H., Nah, J. S., ... & Park, J. Y. (2020). A polyallylamine anchored amine-rich laser-ablated graphene platform for facile and highly selective electrochemical IgG biomarker detection. Advanced Functional Materials, 30(14), 1907297.
- Barman, S. C., Zahed, M. A., Sharifuzzaman, M., Kim, J., Xuan, X., Nah, J. S., ... & Park, J. Y. (2020). Carbon-Free Nanocoral-Structured Platinum Electrocatalyst for Enhanced

Methanol Oxidation Reaction Activity with Superior Poison Tolerance. ChemElectroChem, 7(2), 452-459.

- Hui, X., Xuan, X., Kim, J., & Park, J. Y. (2019). A highly flexible and selective dopamine sensor based on Pt-Au nanoparticle-modified laser-induced graphene. Electrochimica Acta, 328, 135066.
- Kim, J., Yin, J., Xuan, X., & Park, J. Y. (2019). A flexible cable-shaped supercapacitor based on carbon fibers coated with graphene flakes for wearable electronic applications. Micro and Nano Systems Letters, 7, 1-7.
- Sharifuzzaman, M. D., Barman, S. C., Rahman, M. T., Zahed, M. A., Xuan, X., & Park, J. Y. (2019). Green synthesis and layer-by-layer assembly of amino-functionalized graphene oxide/carboxylic surface modified trimetallic nanoparticles nanocomposite for label-free electrochemical biosensing. Journal of the Electrochemical Society, 166(12), B983.
- Chhetry, A., Sharifuzzaman, M., Yoon, H., Sharma, S., Xuan, X., & Park, J. Y. (2019). MoS2-decorated laser-induced graphene for a highly sensitive, hysteresis-free, and reliable piezoresistive strain sensor. ACS applied materials & interfaces, 11(25), 22531-22542.
- Xuan, X., Hui, X., Yoon, H., Kim, D. H., & Park, J. Y. (2019). Easy and direct sensing of toxic cadmium using in situ bismuth plating free method and environmentally friendly synthesized graphene composite. Journal of The Electrochemical Society, 166(8), B637.
- Zahed, M. A., Barman, S. C., Toyabur, R. M., Sharifuzzaman, M., Xuan, X., Nah, J., & Park, J. Y. (2019). Ex situ hybridized hexagonal cobalt oxide nanosheets and RGO@ MWCNT based nanocomposite for ultra-selective electrochemical detection of ascorbic acid, dopamine, and uric acid. Journal of The Electrochemical Society, 166(6), B304-B311.
- Zahed, M. A., Barman, S. C., Sharifuzzaman, M., Xuan, X., San Nah, J., & Park, J. Y. (2018). Ex situ synthesis of hexagonal NiO nanosheets and carboxyl-terminated reduced graphene oxide nanocomposite for non-enzymatic electrochemical detection of H2O2 and ascorbic acid. Journal of The Electrochemical Society, 165(16), B840.
- Xuan, X., Kim, J. Y., Hui, X., Das, P. S., Yoon, H. S., & Park, J. Y. (2018). A highly stretchable and conductive 3D porous graphene metal nanocomposite based electrochemical-physiological hybrid biosensor. Biosensors and Bioelectronics, 120, 160-167.
- Yoon, H., Xuan, X., Jeong, S., & Park, J. Y. (2018). Wearable, robust, non-enzymatic continuous glucose monitoring system and its in vivo investigation. Biosensors and Bioelectronics, 117, 267-275.

- Xuan, X., Yoon, H. S., & Park, J. Y. (2018). A wearable electrochemical glucose sensor based on simple and low-cost fabrication supported micro-patterned reduced graphene oxide nanocomposite electrode on flexible substrate. Biosensors and Bioelectronics, 109, 75-82.
- Xuan, X., & Park, J. Y. (2018). A miniaturized and flexible cadmium and lead ion detection sensor based on micro-patterned reduced graphene oxide/carbon nanotube/bismuth composite electrodes. Sensors and Actuators B: Chemical, 255, 1220-1227.
- Yoon, H. S., Jeong, S. K., Xuan, X., & Park, J. Y. (2017, June). Semi-implantable polyimide/PTFE needle-shaped biosensor for continuous glucose monitoring. In 2017 19th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS) (pp. 1714-1717). IEEE.
- Yoon, H. S., Xuan, X., & Park, J. Y. (2016). Semi-Implantable and Flexible Enzyme-Free Electrochemical Biosensor for Detection of Free Cholesterol. Journal of Nanoscience and Nanotechnology, 16(11), 11417-11420.
- Xuan, X., & Park, J. Y. (2017, January). Miniaturized flexible sensor with reduced graphene oxide/carbon nano tube modified bismuth working electrode for heavy metal detection. In 2017 IEEE 30th International Conference on Micro Electro Mechanical Systems (MEMS) (pp. 636-639). IEEE.
- Xuan, X., Hossain, M. D., & Park, J. Y. (2016). Solvothermal-assisted, reduced-graphene-oxide-modified bismuth electrode for an electrochemical heavy-metal-ion sensor. Journal of Nanoscience and Nanotechnology, 16(11), 11421-11424.
- Xuan, X., Hossain, M. F., & Park, J. Y. (2016). A fully integrated and miniaturized heavy-metal-detection sensor based on micro-patterned reduced graphene oxide. Scientific reports, 6(1), 33125.
- Yoon, H. S., Xuan, X., & Park, J. Y. (2016, January). Semi-implantable glucose sensor based on dual-stacked polymeric film for wireless continuous monitoring. In 2016 IEEE 29th International Conference on Micro Electro Mechanical Systems (MEMS) (pp. 407-410). IEEE.
- Lee, S. J., Yoon, H. S., Xuan, X., Park, J. Y., Paik, S. J., & Allen, M. G. (2016). A patch type non-enzymatic biosensor based on 3D SUS micro-needle electrode array for minimally invasive continuous glucose monitoring. Sensors and Actuators B: Chemical, 222, 1144-1151.

Otras menciones

Congreso

- 24.07.2024 Charla invitada. Germany. The 19th International Conference on Electroanalysis (ESEAC 2024). XING XUAN; Águeda Molinero-Fernandez,; Gaston A. Crespo.
- 22.02.2021. Charla invitada. Estocolmo, Suecia. Digital Futures technology workshop for sports, Título:Wearable Chemical Sensing System for Sports. Autor: G. Crespo, M. C. Botia, Xing Xuan, E. Ekelund.
- 4. 10.2019. La presentación oral invitada. Pyongyang, Corea del Norte. ICoPUST 2019, Título: Development of Flexible electrochemical Heavy Metal Detection and Glucose Sensors Using Carbon Nanocomposites and their Facile Microfabrication Techniques. Autor: Xing Xuan.
- 5.08.2020. Charla invitada. Estocolmo, Suecia. EIT Digital IoT summer school, Título: Wearable Smart Sensing for personalised training. Autor: G. Crespo, M. C. Botia, Xing Xuan, E. Ekelund.
- 16.11.2018. Premio al mejor artículo. Seúl, Corea del Sur. Korean Sensors Society 2018. Título: Laser-induced graphene-based flexible biosensors with ultra-low detection limit. Autor: Yoon, H., Nah, J.,Kim, J., Xuan, X., Park, J.
- 12–15.06.2018. Miami, Estados Unidos. Anniversary world congress on BIOSENSORS 2018 . Título: An environmental-friendly synthesis method of a new nanocomposite between reduced graphene oxide and bismuth nanoparticles and for toxic easy and simple heavy metal detection. Autor: Xuan, X., Park, J.

Proyectos de investigación

- Wearable Smart Sensing in EIT Digital. Gastón A. Crespo. (KTH (Kungliga Tekniska högskolan)). 01/09/2019-31/12/2020. 350.000 €.
- Korea Evaluation Institute of Industrial Technology. “Development of nano multi sensors based on wearable patch for non haematological monitoring of metabolic syndrome”, 0.6 million $/ year. Responsabilidad: Asistente de Investigación (KWU). PI: J. Y. Park (KWU). 07.2018. – 08.2019.

- National Research Foundation (South Korea), “Development of wearable smart patch system based on non-invasive hybrid biosensor for self-care management of chronic disease”, 0.3 million $/ year. Responsabilidad: Asistente de Investigación (KWU). PI: J. Y. Park (KWU). 04.2017. – 08.2019.
- Korea Evaluation Institute of Industrial Technology, “Development of system semiconductor standardisation for IoT Industry”, 0.07 million $/ year. Responsabilidad: Asistente de Investigación (KWU). PI: J. Y. Park (KWU). 06.2016. – 05.2019.

Transferencia de tecnología/conocimiento

- Nombre del curso: Chemical Sensing (CE2020). Xing Xuan; Total de 49 clases (98 horas). KTH, Suecia. 2020 – 2023.
- Nombre del curso: Solid State Electronic Devices 1: Xing Xuan; Total 21 clases (42 horas). PUST, Corea del Norte. 09.2019
- Nombre del curso: Basic programming languages 1: Xing Xuan; Total 25 clases (50 hours). PUST, Corea del Norte. 09.2019
- Nombre del curso: Micro-nano manufacturing Lab: Xing Xuan; Total 45 clases (90 hours). KWU, Corea del Sur. 12.2014 – 12.2018.
- Patente: Micro-patterning Method of Reduced Graphene Oxide for Sensor Applications. Número de Solicitud: 10-2016-014978; Fecha: April 02, 2018; Inventor: J. Y. Park, Hyosang Yoon, Xing Xuan (Corea del Sur)