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Editorial

Editorial for the Special Issue on Flexible and Wearable Sensors

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Flexible wearable sensors have garnered significant interest in the fields of human-computer interaction, materials science, and biomedicine. The remarkable progress achieved in combining flexible materials and sensor manufacturing processes has led to substantial growth in flexible wearable sensors, making it a highly attractive and rapidly evolving area of interdisciplinary research. This Special Issue aims to highlight the latest advancements, ongoing challenges, and emerging opportunities in flexible wearable sensors, encompassing both fundamental principles and practical applications. The objective of this Special Issue is to inspire the community by addressing key questions in this field, with the ultimate aim of maximizing the societal impact of flexible wearable sensors.

In this Special Issue on Flexible and Wearable Sensors, we have included 25 papers, including 24 research papers, covering applications in human-computer interaction [1–3], mechanical design [4–8], health monitoring [9–15], manufacturing technology [16–20], algorithms [21–23], and smart cities [24]. Additionally, we feature an intriguing review paper focusing on flexible wearable sensor devices for biomedical applications [25].

In particular, Xue et al. proposed a frictional electromagnetic hybrid harvester with a low starting wind speed and an engineering-practical propeller design approach to achieve output power over a wide range of wind speeds [24]. Vanhala et al. proposed a strategy for long carbon stitched fibers in the form of permeable carbon fiber cloth placed on a stretchable thermoplastic polyurethane matrix to improve the 3D printed matrix's mechanical, electrical, and thermal properties [17]. Gao et al. proposed a flexible skin pressure sensor for monitoring the pulse of the radial artery, which was connected to a flexible processing circuit mount to enable real-time wireless, accurate monitoring of the pulse by a smartphone [12]. Zhang et al. combined 2D transition metal carbides, nitrides, and carbon-nitrides with a honeycomb structure formed by femtosecond filamentary pulses to design and fabricate a high-performance flexible piezoresistive sensor that enables stress-strain detection during human movement [14].

Finally, the review articles in this issue highlight the latest advances in flexible wearable sensor devices for biomedical applications [25]. As the field of flexible wearable electronics continues to grow, the number of relevant articles published on flexible wearable sensors is also increasing, and we look forward to the day when flexible wearable electronics move from the laboratory to full social life.

It is our hope that this Special Issue on Flexible and Wearable Sensors provides readers with valuable insights into the current state of the art in this rapidly evolving research area, presenting some of the latest technologies developed in the field.

Author Contributions: Investigation, L.G. and Z.Y.; resources, L.G. and Z.Y.; writing—original draft preparation, L.G.; writing—review and editing, L.G. and Z.Y.; supervision, L.G.; funding acquisition, L.G. All authors have read and agreed to the published version of the manuscript.

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Citation: Gao, L.; Yang, Z. Editorial for the Special Issue on Flexible and Wearable Sensors. *Micromachines* **2023**, *14*, 1400. https://doi.org/10.3390/mi14071400

Received: 4 July 2023
Accepted: 7 July 2023
Published: 9 July 2023

Funding: This research was supported by the National Natural Science Foundation of China (No.62274140), the Fundamental Research Funds for the Central Universities (20720230030).

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

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