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Editorial

Introducing Applied Nano: An Interdisciplinary Open Access Journal Showing How Nanoscience Can Offer Solutions to Different Problems and Needs

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The first question that came to mind when I received the proposal to lead the Editorial Board of *Applied Nano* was: "*Do we really need a new nano-journal?*". Immediately, an obvious and encouraging answer arose, in a statement which is probably one of the most cited quotes in scientific literature: "*There is plenty of room at the bottom*" [1]. There is plenty of room, in a space which is enlarging as the whole scientific community becomes aware of the power offered by nanoscience to solve practical issues: because of this, a new journal devoted to the applications of nanomaterials is more than welcome.

Indeed, during the last decades, objectives launched by the rise and boosting growth of nanotechnologies have become more and more promising and ambitious every day. The introduction of new nano-level systems finds almost daily space in science-related magazines, news feeds and social media, in an increasing number of cases regarding the introduction of usable devices into the mass-consumer markets. A paradigmatic example of "success" can be found in the story of semiconductor Quantum Dots (QD). Discovered at the beginning of the 1980s, brilliantly demonstrating the effectiveness of quantum size effects, QD have quickly achieved massive application and consumer market share, and now "*The global quantum dots (QD) based products market will be potentially valued at more than $35 billion by 2030*" [2]. In this expanding growth, research on QD paved the way to an enormous number of systems based on different compounds. For example, Perovskite QD are on the rise now because of their high photoluminescence quantum yield, narrow emission bands and tunable emission wavelength covering the entire visible spectral region. These features indicate their use as powerful LED sources, but also as good candidates for multiplex bioimaging [3].

If we want to look at less famous cases we can take a quick glimpse, for example, at the European Commission Horizon 2020 site, in the section relating to "Success Stories" in the Nanotechnology field [4]. It is amazing and instructive, as it reports works ranging from graphene-based solutions for touchscreen technology, to energy-saving nano-surfaces inspired by nature, to targeted drug delivery to fight antibiotic resistance, to name just the first three topics which caught my attention. The last example also enables the introduction of Nanomedicine as one of the most important fields of application of nano-systems, with big expectations progressively being verified in a huge number of directions, including cancer cells targeting [5], antibacterial devices [6], SERS nanotags for bioimaging [7], magnetic nanomaterials applied to theranostics [8], etc., the list could be endless.

In other words, everyone working in this appealing field has the precise and exciting feeling that the nanotechnology toolbox will not stop in offering opportunities and providing solutions to problems on the largest scale. The more the theoretical understanding, characterization techniques and preparative knowledge grows, the more the exploitation of nanosized objects and nanostructures will allow us to find solutions to specific questions and responses to particular technological and commercial needs, and, in addition (and maybe most importantly) to solve world-wide issues including food and water security, global health, and climate changes.

Applied Nano will thus publish articles (regular research papers with no length restriction, and reviews) in any field of study involving the application of nanoscience and nanotechnology.

It will include papers pertaining to a wide range of areas, covering chemistry, physics, materials science, biosciences, medicine and theranostics, environmental and water sciences, cultural heritage, energy storage and conversion, electronics and photonics, to name a few relevant examples. Works that synthesize information clearly suggesting practical usage or showing useful functions will be preferred, while articles involving more theoretical or general studies should be submitted to less application-directed journals.

Applied Nano is expected to trigger the interest of a wide community of academic and industrial researchers worldwide, and to stimulate scientific communication at any level, becoming a respected forum for all the fields that recognize nanoscience as a powerful tool to solve problems. To do this, we are building a group of respected and experienced scientists for the Editorial Board, and will gather a panel of high-level referees to ensure fair peer review and rapid decisions.

I sincerely hope that you will share my enthusiasm for this new opportunity to publish the best applied nanoscience and, subsequently, for the upcoming success of *Applied Nano*.

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