Curriculum Vitae of Carlos Nelson Elias

Full Professor of Materials Science and Engineering
Military Institute of Engineering (IME), Rio de Janeiro, Brazil
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DISTINCTIONS AND INTERNATIONAL RECOGNITION

- CNPq 1A Researcher – Highest distinction of the Brazilian National Research Council.
- Five-time recipient of the FAPERJ (Brazilian State Agency) "Scientist of Our State" Award (2004, 2008, 2012, 2016, 2020).
- Ranked among the Stanford/Elsevier Top 2% Scientists Worldwide (2021, 2023, 2024).

ACADEMIC LEADERSHIP

Full Professor, Graduate Program in Materials Science and Engineering – IME.

Collaborating Professor, Orthodontics Program – Federal University of Rio de Janeiro (UFRJ).

More than four decades of academic leadership in Physical Metallurgy and Biomaterials.

MAJOR SCIENTIFIC AND TECHNOLOGICAL CONTRIBUTIONS

- Pioneering development of nanocrystalline commercially pure titanium with mechanical performance comparable to Ti-6Al-4V alloy, successfully transferred to civilian and military applications. Collaboration with Prof Marc Meyers (University of California, San Diego) and Ruslan Valiev (Physic Institute of Moscow)
- Development and industrial transfer of advanced surface engineering technologies for dental implants, accelerating osseointegration (Patent INPI PI0602093-3).

- Leadership in the development of high-performance zirconia blocks for CAD-CAM dental prostheses, commercially implemented in Brazil.
- Innovative research in multilayer and multicolored zirconia systems for aesthetic dental restorations.
- Pioneering additive manufacturing processes for high-density zirconia with dual-use biomedical applications.

SCIENTIFIC OUTPUT AND IMPACT
4 books (Biomaterials).

90 book chapters.

320 presentations at national and international conferences.

Web of Science: 4,887 citations; H-index 34.

Scopus: 6,175 citations; H-index 37.

Google Scholar: 13,660 citations; H-index 55; i10-index 176.

MENTORSHIP AND HUMAN RESOURCE DEVELOPMENT
38 PhD theses supervised.

57 MSc theses supervised.

24 undergraduate research projects supervised.

Extensive collaboration with industry and academic institutions, fostering innovation and technology transfer in dental and biomedical devices.

INTERNATIONAL COLLABORATION AND SCIENTIFIC ENGAGEMENT
Active research collaborations with leading international institutions in the United States and Europe.

Organizer of scientific symposia in Brazil and at major international conferences in the United States.

Recognized for bridging academia, clinical practice, and industry in the development of advanced biomaterials.

PROFESSIONAL STATEMENT
Professor Carlos Nelson Elias' career reflects sustained excellence in materials science, biomedical engineering, and translational research. His work has advanced sustainable, high-performance dental and biomedical technologies, positioning him as a distinguished

participant alongside leading international scientists and Nobel Laureates at global scientific forums.