

**Multi-actor perspectives in parasite diagnosis and epidemiology.**Rinaldi L.<sup>1</sup><sup>1</sup>University of Napoli Federico II, Veterinary Medicine and Animal Production, Napoli, Italy

Parasitology has long been acknowledged at the international level as both a multidisciplinary and interdisciplinary field, contributing extensively to a wide spectrum of basic and applied research. In recent decades, the demand for integrated scientific approaches and cross-sectoral collaboration in parasitology has intensified, driven by technological advances in the diagnosis of parasitic infections in humans and animals, as well as in epidemiological modeling and field-based applications.

The discipline inherently promotes integration across diverse scientific domains—including ecology, geoinformatics, information technology, the social sciences, and economics—facilitating a more comprehensive understanding of host–parasite interactions. Such transdisciplinary collaboration enables a systems-level approach to parasitism and supports more informed prioritization of interventions that transcend conventional public health frameworks.

Recent developments in artificial intelligence (AI) and machine learning (ML) are reshaping parasitological research and practice. These technologies enhance the sensitivity and specificity of diagnostic tools, improve the efficiency of data analysis, and facilitate more accurate modelling of disease dynamics, thereby strengthening surveillance and control strategies for parasitic diseases.

Parasitology may be conceptualized as a "meta-discipline" — a field that synthesizes methodologies and insights from multiple scientific domains to address complex biological questions that are not resolvable within a single discipline. Emerging subfields such as paleoparasitology, geoparasitology, digital parasitology, socio-parasitology, eco-parasitology, citizen parasitology, AI-driven parasitology, and IT-integrated parasitology illustrate the field's dynamic and adaptive nature. These developments underscore the continual evolution of parasitological tools, methods, and conceptual frameworks, positioning the discipline at the forefront of innovation in biomedical and environmental sciences.