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Nota di contenuto	From the Series Editors -- Preface -- 1. The Non-Photochemical Quenching of the Electronically Excited State of Chlorophyll a in Plants: Definitions, Timelines, Viewpoints, Open Questions; George C. Papageorgiou, Govindjee -- 2. Lessons from Nature: A Personal Perspective; William

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Sommario/riassunto

Harnessing the sun's energy via photosynthesis is at the core of sustainable production of food, fuel, and materials by plants, algae, and cyanobacteria. Photosynthesis depends on protection (photoprotection) against the perils of intense sunlight. The first line of defense among a cascade of photoprotective mechanisms is the safe removal of excess excitation energy within the light-harvesting system.

The widely used indicator for photoprotective energy dissipation (thermal de-excitation of excited-state chlorophyll) is the quick, facile, and non-destructive assessment of non-photochemical quenching of chlorophyll fluorescence (NPQ). By placing light harvesting and photoprotection into the context of whole-organism function, this book directs the use of NPQ to aid in the identification of plant and algal lines with superior stress resistance and productivity. Furthermore, this volume addresses open questions in the interpretation of the molecular mechanisms of light harvesting and energy dissipation, the resolution of which should aid in the development of artificial photosynthetic systems. A comprehensive picture – from theory to practice, and from single molecules to organisms in ecosystems – is presented. In addition to providing current views of the leading specialists in this area, this book includes basic and practical information for non-specialists. For example, this book critically examines uses and misuses of the term NPQ and of advantages and pitfalls of NPQ measurements, and presents concrete recommendations for all concerned.
