

# Contents

	<b>Foreword</b>	vii
	<b>Preface</b>	ix
	<b>Acknowledgments</b>	xi
<b>1</b>	<b>Introduction</b>	1
	References	3
<b>2</b>	<b>Terminology</b>	4
	2.1 Terms Related to Types of Detectors	4
	2.2 Terms Related to the Operation of Detectors	7
	2.3 Classification of Detectors	13
	References	15
<b>3</b>	<b>Detector Properties</b>	16
	3.1 Responsivity	17
	3.2 Noise and Detectivity	59
	3.3 Linearity	68
	3.4 Time Quantities	87
	References	90
<b>4</b>	<b>Thermal Detectors</b>	94
	4.1 Thermocouples and Thermopiles	100
	4.2 Bolometers and Thermistors	117
	4.3 Pyroelectric Detectors	123
	4.4 Golay Pneumatic Detectors	133
	4.5 Absolute Radiometers and Calorimeters	134
	References	140
<b>5</b>	<b>Photoemissive Detectors</b>	143
	5.1 Vacuum Phototubes	148
	5.2 Photomultiplier Tubes	160

5.3	Gas-Filled Phototubes	210
	References	212
<b>6</b>	<b>Semiconductor Detectors</b>	<b>215</b>
6.1	Photoconductors	216
6.2	Junction Photodetectors	232
6.3	Avalanche Photodiodes	268
	References	275
<b>7</b>	<b>Detector Attachments</b>	<b>278</b>
7.1	Filters for Spectral Matching	278
7.2	Attenuators	288
7.3	Choppers and Modulators	296
7.4	Diffusers	306
7.5	Attachments for Radiance or Luminance Measurements	315
7.6	Measurements of Continuous-Wave Laser Radiation	318
	References	321
<b>Appendix A</b>	<b>Compiled Data on Detectors</b>	<b>324</b>
A.1	Linearity Range	324
A.2	Uniformity of Responsivity	325
A.3	Temperature Coefficient of Responsivity	325
A.4	Notes for Table A.1	326
A.5	Notes for Table A.2	327
A.6	Notes for Table A.3	328
<b>Appendix B</b>	<b>Tables</b>	<b>330</b>
<b>Index</b>		<b>333</b>