

## CONTENTS

1. Introduction	1
2. Reaction kinetics of species trapped in glassy <b>matrices</b>	6
Excess electrons (6): Post-irradiated decay (6). Spectral relaxation (11). Photostimulated decay (15). <b>Photostimulated</b> conversion into trapped hydrogen atoms (17). <b>Radio-luminescence</b> kinetics (21).	
Hydrogen atoms (31): Kinetics of trap-limited decay (32). Effect of irradiation temperature on decay rate (35). Mechanism of decay (40). Effect of matrix dynamics on decay patterns (47).	
Alkyl radicals (52): Decay patterns (52). Applicability of $\sqrt{t}$ law (60). Oxidation kinetics (69).	
Some other species (73): <b>Disproportionation of <math>Cl_2^-</math></b> (73)   <b>Recombination <math>NO_2 + NO_2^{2-} \rightarrow 2 NO_2^-</math></b> (74). <b>Arylcarbenes</b> decay (76).	
3. Kinetic behaviour of water radiolysis products in <b>poly-</b> crystalline ice	82
Trapped electrons (82). Hydrogen atoms (87). Hydroxyl radicals (89). Structural relaxation in polycrystalline ice (93). Some other polycrystalline systems (95).	
4. Decay of radicals in polymer matrices	99
<b>Allyl</b> radicals in polyethylene (99). Propagating radicals in <b>poly(methyl methacrylate)</b> (105). ITL of X-irradiated polystyrene (112).	
5. Lifetime distributions of photoproduced cation-radicals in micelles	116
Time-dependent reactivity of species embedded in <b>micelles</b> (117). Solvent isotope effect (120). Effect of micellar 'interface modification on reactivity of embedded species (124). Distribution of activation energy for decay of embedded species (128). Kinetic behaviour of photoejected electrons (132).	
6. Molecular origins of reactivity distribution in condensed media	137
Time-dependent rate constant in CTRW model (137). CTRW model of nonexponential relaxation (141). Barrier dispersion model of waiting-time distribution function (141).	
7. Appendices	145
A. Kinetics with time-dependent rate constant (145). B. Inverse <b>Laplace</b> transform of Kohlrausch relaxation function (147).	