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Yusuf Yagci is a full professor of Chemistry at Istanbul Technical University, Turkey with expertise in photopolymerization. He received his Masters (1977) and Ph.D. (1979) degree from Liverpool University (UK). He joined Istanbul Technical University in 1980 and between 1996 and 2001 he was the Director of the Institute of Science and Technology of Istanbul Technical University. Professor Yagci's research interests involve photoinitiated cationic and radical polymerization, polymer modification, controlled polymerization methods and their transformations, block and grafted copolymers, nanocomposites, click chemistry, and benzoxazine-based thermosets. He has published about 500 original research papers in different peer-reviewed international journals and he is the inventor and co-inventor of five patents. He has also co-authored and co-edited five books and has been invited to write over 40 chapters in different books. Professor Yagci has supervised about 85 Ph.D. and M.Sc. students. He serves as member of the editorial board of many international journals. He is the recipient of several awards including the Turkish Scientific and Technological Research Council (Tubitak) Young Investigator Award (1989), Tubitak Science Award (1994), Turkish Chemical Society Honorary Member Award (2002), Elsevier Scopus Award (2007), The Society of Polymer Science, Japan (SPSJ) International Award (2008), and the Elginkan Foundation Technology Award (2008), COMSTEC Award (2011). He acts as the Associate Member of IUPAC Polymer Division. He was a member of the Turkish Academy of Sciences (1997-2011). He organized several international meetings in Turkey and abroad, and presented many plenary and invited lectures in international conferences.

NEW PHOTOCHEMICAL METHODS FOR MACROMOLECULAR SYNTHESIS

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Initiation of various modes of polymerization processes by photochemical methods has been widely used[1] in conventional applications in coatings, adhesives, inks, printing plates, optical waveguides, and microelectronics.
In this presentation, the development of new photoinitiating systems for radical[2, 3], cationic[4] and step-growth polymerization[5, 6]will be described. Besides film forming applications, these methods can also be used in polymer syntheses. What type of polymerization mode is applicable depends on the chemical structure of the monomers used. Whilst free radicals initiates the polymerization of unsaturated polyesters and (meth)acrylic monomers, epoxy and vinyl ether based formulations are activated by a cationic mechanism. Recent relevant studies[2] were devoted to make free radical and cationic photoinitiators responsive to light with wavelengths in the near UV and visible region of the spectrum With recent advances in the use of nanomaterials like metals, metal oxides and silicates in UV curing applications, it is now possible to prepare nanocompositesfilms with enhanced physical, chemical and biological properties. In the presentation, several synthetic methodologies for the preparation of epoxy and (meth)acrylate based formulations containing clay or metal nanoparticles[7,8]will also be described. The nanoparticles are homogenously distributed in the network without macroscopic agglomeration. Applicability to both free radical and cationic systems is demonstrated. Photoinduced "Click" reactions which may potentially be used in film formation[9, 10] will also be discussed.

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