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POSTER SESSION
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S_{11}-PP1	**Double crosslinking of natural polymers bearing amine groups – original way to obtain nanocapsules for biomedical applications** Gabriela Lupescu (Andrei),[a] Marcel Popa,[a] and Cătălina A. Peptu[a] [a] *"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Department of Natural and Synthetic Polymers 73 Prof. dr. docent Dimitrie Mangeron, 700050, Iasi, Romania*
S_{11}-PP2	**Highly luminescent Europium (III) complexes based on Succinimide and Maleimide** Corneliu S. Stan[a], Cătălina A. Peptu[a], Ioan Roşca[a], Veronica Muşat[a] and Marcel Popa[a] [a] *"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Department of Natural and Synthetic Polymers, 73 Prof. dr. docent Dimitrie Mangeron, 700050, Iasi, Romania,*
S_{11}-PP3	**Utilization of hydroxypropyl cellulose for green and efficient synthesis of silver nanoparticles** E.S. Abdel-Halim[a,b], Salem S. Al-Deyab[a] [a] *Petrochemical Research Chair, Chemistry Department, College of Science, King Saud University, Riyadh 11451, P.O. Box 2455, Saudi Arabia* [b] *Textile Research Division, National Research Center, Dokki, Cairo, Egypt*
S_{11}-PP4	**Synthesis of pH-responsive cationic polymer-coated magnetic nanocomposites for simultaneous magnetic resonance imaging and gene delivery** Younghee Ahn,[a] Eunjung Kim,[a] Byunghoon Kang,[a] Jin-suck Suh,[b] Yong-Min Huh, [b]* and Seungjoo Haam[a]* [a] *Department of Chemical and Biomolecular Engineering, Yonsei University, Seoul 120-749, South Korea.* [b] *Department of Radiology, College of Medicine, Yonsei University, Seoul 120-752, South Korea.*
S_{11}-PP5	**Binding Investigations of Organic Fluorescent sensors for Carboxylate and Dicarboxylate Anions** M.H. Al-Sayah*, M.K. Shehab, Q.H. Dirar *Department of Biology, Chemistry and Environmental Science, American University of Sharjah, PO Box 26666, Sharjah, United Arab Emirates,*
S_{11}-PP6	**Highly Selective UV/Visible-Near Infrared and Fluorescence Sensing of Cu^{2+} Based on Thiocarbonohydrazone System in Aqueous Media** Debabrata Maity and T. Govindaraju* *Bioorganic Chemistry Laboratory, New Chemistry Unit,* Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560064, India.
S_{11}-PP7	**Pillar[5]arene-based linear supramolecular polymer** with quadruple hydrogen bondings Yeon Sil Park, Kyungsoo Paek *Department of Chemistry, Soongsil University, Seoul 156-743, Korea*
S_{11}-PP8	**Photoluminescence of the polyurethanes, modified with rear-earth metal's complexes** Eu.V. Lobko,[a] A.V. Hubina, [a] N.V. Kozak, [a] S.B. Meshkova, [b] V.V. Klepko, [a] Z.M. Topilova, [b] [a] *Department of polymer physic, Institute of Macromolecular Chemistry of NAS of Ukraine, 48 Kharkivske chaussee, 02160, Kyiv, Ukraine* [b] *Department of analytical chemistry and physic-chemistry of coordination compounds, A. V. Bogatsky Physic-Chemical Institute of NAS of Ukraine, 86 Lustdorf road, 65080, Odessa, Ukraine,*
S_{11}-PP9	**The influence of copper (2+) acetylacetonate on the linear and cross-linked polyurethanes short-range ordering** Eu.V. Lobko, Z. O. Gagolkina, A.V. Hubina, N.V. Kozak, V.V. Klepko *Department of polymer physic, Institute of Macromolecular Chemistry of NAS of Ukraine, 48 Kharkivske chaussee, 02160, Kyiv,*
S_{11}-PP10	**Study of the chemical composition versus the cold point filter plugging of biodiesel** M. Tubino, A.G. Castro, R. A. Mattos *Institute of Chemistry, University of Campinas – UNICAMP, P.O. Box 6154, Campinas - SP, Brazil*

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Highly luminescent Europium (III) complexes based on Succinimide and Maleimide

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Abstract

Motivation: This paper reports the preparation of new, highly luminescent, Europium (III) complexes with Succinimide (SI) and Maleimide (MI) as ligands. The complexes were prepared in aqueous solution at 1:3 metal to ligand ratio. Succinimide and Maleimide were less investigated as suitable ligands for lanthanide complexes. Although these two compounds were successfully used for preparing of transition metals complexes [1], up to date there are no reported studies regarding lanthanide complexes using previously mentioned ligands. Strong luminescence emission was observed in both Eu(III) – SI and Eu(III) – MI complexes. The new obtained luminescent Europium (III) complexes may be particularly interesting for some applications in optoelectronics [2].

Methods: Samples of the prepared Eu (III) complexes were first investigated through chemical elemental analysis and energy dispersive X-ray spectroscopy (EDX). The thermal stability of the complexes was studied in the 50 - 1000^{o}C range. X-ray powder diffraction was used for investigation of the crystalline cell parameters. Also fluorescent emission and excitation spectra and SEM micrograph were recorded for each complex.

Results and Discussion: Data collected through analysis methods revealed the formation of the Eu(III) complexes with above mentioned ligands at 1:3, metal to ligand (M:L) molar ratio, having the general formula: $[LnL_3(H_2O)_3]$. The coordination number of the trivalent europium cation in the prepared complexes is 9, which is commonly observed for the lanthanides situated in the middle of the series. According to the data obtained from fluorescence spectrometry the most intense excitation peak is centered at 400 nm which corresponds to the $^5L_6$ excited level of Eu^{3+} ions while the less intense but, significant peak centered at 468.5 nm corresponds to the $^5D_2$ excited level. The less intense emission band centered at 593.5 nm is attributed to the $^5D_0 \rightarrow {}^7F_1$ parity-allowed magnetic dipole transition which is known to be unaffected by the surroundings symmetry [3]. The most intense emission band centered at 618 nm is attributed to the $^5D_0 \rightarrow {}^7F_2$ electrical-dipole allowed transition which is known to be highly affected by the symmetry of the crystal field surrounding the Eu^{3+} cation, being relatively stronger in case of lower surroundings symmetry. The crystalline structure and similar appearance of the prepared complexes is highlighted by the recorded SEM micrographs.

Conclusions: The paper presents the preparation and study of two new complexes resulting from the reactions between Eu(III) and Succinimide, Maleimide ligands at 1:3 molar ratio. The derivatograms reveal that thermal stability is quite similar in case of both studied complexes, which is justified by the small structural differences of ligands and also by the same type of coordination of the central atom Eu(III). Strong luminescence emission with the most intense band centered at 618 nm was observed in case of both Eu(III) – SI and Eu(III) – MI complexes.

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