Ralf Steudel et al.:

Major Scientific Achievements in Research and Education (1963-2016)

First preparation of pure S_2O and its stabilization by adduct formation as $S_2O{\cdot}NMe_3$

Matrix-Isolation of CS and of CCl_3 and characterization of their decomposition products

First preparation of S_8O, S_7O, S_6O, S_9O, $S_{10}O$, S_7O_2 and of $S_8O{\cdot}SbCl_5$, $(S_8O)_2{\cdot}SnCl_4$ and $S_{12}O_2{\cdot}\,2SbCl_5$

First preparation of S_9, $S_6{\cdot}S_{10}$, S_{11}, S_{13}, S_{14} and S_{15}

Structural determination or redetermination of the cyclic molecules S_6, S_7, S_9, S_{10}, S_{11}, S_{12}, $S_{12}{\cdot}CS_2$, S_{13}, S_{14}, $S_6{\cdot}S_{10}$ and study of their thermal and photochemical decomposition

Quantitative analysis of liquid sulfur at various temperatures and of related sulfur mixtures by HPLC (first discovery of sulfur rings with up to 28 atoms)

Preparation of novel cyclic sulfur-nitrogen compounds such as S_nNR (n = 5, 6, 8, 9; R = Me, Oct), $CX_3CONS_3N_2$ (X=F, Cl) and of the cage-like $[NH_4][S_4N_5O]$

Vibrational analyses of many cyclic sulfur compounds such as S_7, S_8, $^{34}S_8$, S_{12}, Se_3S_5, S_nO (n = 4-9), $(SNH)_4$ and $(SND)_4$ with force constant calculations

Prepation of numerous long-chain and cyclic polysulfanes R-S_n-R with organic and inorganic substituents R

Preparation and first structural characterization of dialkoxysulfanes $(MeO)_2S_n$ with n = 1, 2, 9, 11.

Preparation and characterization of numerous cyclic binary selenium sulfides Se_xS_y including ^{77}Se-NMR spectroscopy and their detection in sulfur-selenium melts and in naturally occurring elemental sulfur.

Ion-chromatographic separation of the polythionate anions $[S_nO_6]^{2-}$ with up to 13 sulfur atoms

Computational study of the thermal decomposition mechanisms of S_2O and of C_2H_2SO (thiirane)

Discovery of the pseudorotation of S_7 and Se_7 molecules in solution by vibrational and ^{77}Se-NMR spectroscopy

Discovery of the dissociation equilibrium between Se_8, Se_6 and Se_7 in solution

Computational characterization of polysulfanes H_2S_n including their isomeric thiosulfoxides and their protonated and deprotonated derivatives

Computational and spectroscopic characterization of sulfur halides SX_2, S_2X_2, SX_4, SSF_4, $FSSF_3$, H_2SF_2, H_2SF_4 (X = F, Cl) and ClSeSCl.

Computational characterization of the oxoacids HSO, H_2SO_2, H_2S_2O, $H_2S_2O_2$, $H_2S_2O_3$, $H_2S_2O_4$, H_2SO_5, $H_2S_2O_7$, $H_2S_nO_6$ (n = 2-4), H_2S_3O, HSO3F and HSO_3Cl. and of the hydrates of SO_2, H_2SO_3 and $H_2S_2O_3$

Computational characterization of isomers of S_6, S_7 and S_8 as well as of various protonated and metallated sulfur molecules

Elucidation of the vulcanization of rubber by sulfur (compounds) using zinc oxide as an accelerator

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