LABORATORY DETECTION OF TWELVE CARBON-SULFUR CHAINS

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Twelve sulfur-containing carbon chains have recently been detected and spectroscopically characterized in our laboratory by Fourier transform microwave spectroscopy. These include: the singlet chains C_7S and C_9S; the triplet chains C_6S and C_8S; the free radicals HC_5S, HC_6S, HC_7S, and HC_8S; and the asymmetric tops H_2C_4S, H_2C_5S, H_2C_6S, and H_2C_7S. In addition, all three fine structure ladders of triplet C_4S have now been observed, and the two fine-structure constants γ and λ determined to high accuracy. An experimental structure of C_5S has also been derived on the basis of the singly-substituted isotopic species which were observed in natural abundance. A summary of these and other recent results will be presented.