Iron mono-antimonide crystallizes in the hexagonal structure of the NiAs. This structure is characterized by empty interstitial sites accessible to iron ions at random. Hence, the real chemical formula reads as Fe\textsubscript{1+x}Sb. We have succeeded to make this compound with very small amount of interstitial iron i.e. with \( x \approx 0.02 \). Despite that Mössbauer spectra in the paramagnetic state are composed of two quadrupole split components with the approximate spectral area remaining in the ratio 2:1. It means that some deformation occurs in the regular iron sub-lattice leading to two inequivalent regular iron sites occurring in the approximate ratio 2:1. One can determine parameters of the electric field gradient (EFG) tensor in the magnetically ordered state (\( T_N \approx 230 \text{ K} \)) as magnetic moments of the regular iron generate triangular anti-ferromagnetic structure in planes perpendicular to the \( c \)-axis. Both EFG tensors exhibit very large asymmetry parameter \( \eta \approx 1 \). On the other hand, for the ideal NiAs structure one expects EFG to be axially symmetric with the main axis aligned with the \( <001> \) direction. EFG components showing maximum absolute values (in the diagonal representation) are oriented along \( <001> \) and \( <120> \) directions. The component along \( <001> \) is negative, while the component along \( <120> \) is positive. Hyperfine magnetic fields are oriented perpendicular to the \( c \)-axis and make two spirals propagating along the \( c \)-axis. They occur with relative abundances 2:1. Both spirals are anti-ferromagnetic and incommensurate with the lattice period along the \( c \)-axis. Despite different crystal structure the situation is quite similar to the situation encountered for FeAs [1] due to the octahedral environment of the iron atom being surrounded in both cases by six metalloids being additionally isovalent for both compounds.

\[ \text{Fig. 1 Examples of the FeSb Mössbauer spectra.} \]

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