1015-46-14   **Dorothee D. Haroske*** (`haroske@minet.uni-jena.de`), Mathematical Institute,
                    Friedrich-Schiller-University Jena, 07737 Jena, Germany. *Growth envelopes in function spaces.*

Recently the concept of growth envelopes in function spaces was introduced. Basically, the idea is to measure unboundedness of functions that belong to Sobolev spaces W_p^k and more general scales of spaces. By Sobolev's famous embedding theorem it is known that for $k \leq n/p$, $1 \leq p < \infty$, there are (essentially) unbounded functions in W_p^k. Growth envelopes, consisting of a growth envelope function

$$\mathcal{E}_{\mathsf{G}}^X(t) \ \sim \ \sup_{\|f|X\| \leq 1} f^*(t), \quad t > 0,$$

together with some additional fine index $u_{\mathsf{G}} \in (0, \infty]$, proved to be a reasonable tool in order to characterise spaces.

In the past mainly local assertions, i.e. the behaviour of $\mathcal{E}_{\mathsf{G}}^X(t)$ for small t, were considered. We recall some of the used proof methods for Sobolev spaces and briefly explain the ideas concerning spaces of Besov (and Triebel-Lizorkin) type. We present some global assertions and discuss phenomena connected with the above spaces and some weighted spaces, too.

Finally, we deal with Besov spaces defined on fractal h-sets. (Received November 28, 2005)