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**Ulrich Kohlenbach\*** (`kohlenbach@mathematik.tu-darmstadt.de`), Department of Mathematics, Darmstadt University of Technology, Schlossgartenstrasse 7, D-64289 Darmstadt, Germany. *New effective uniformity results in fixed point theory.*

We will present recent uses of proof theory to metric fixed point theory. These results concern the extraction of effective uniform bounds from ineffective convergence proofs, e.g. on the asymptotic regularity of functions. The strong uniformity of the bounds has led to new qualitative results on the approximate fixed point property (w.r.t. nonexpansive mappings) of product spaces and a new concept of ‘uniform approximate fixed point property’ (with L. Leuştean). We also show that bounds on asymptotic regularity in fixed point theory often can be effectively transformed into bounds on a logical reformulation of strong convergence (which ineffectively is equivalent to the latter) even in cases where there is no computable rate of strong convergence.

## References

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