



**ASYMPTOTIC BEHAVIOR OF AVERAGED AND  
FIRMLY NONEXPANSIVE MAPPINGS  
IN GEODESIC SPACES**

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In Banach spaces, firmly nonexpansive and averaged mappings form special classes of nonexpansive mappings which possess interesting properties that are not common to all nonexpansive mappings. This talk is mainly motivated by a very recent work by D. Ariza-Ruiz, L. Leuştean and G. López-Acedo [Firmly nonexpansive mappings in classes of geodesic spaces, *Trans. Amer. Math. Soc.* (in press)] where firmly nonexpansive mappings are defined and studied in suitable classes of geodesic spaces.

We further study averaged and firmly nonexpansive mappings in the setting of geodesic spaces with a main focus on the asymptotic behavior of their Picard iterates. We obtain an explicit quantitative version of a generalization to geodesic spaces of a result on the asymptotic behavior of Picard iterates for firmly nonexpansive mappings proved by S. Reich and I. Shafrir [The asymptotic behavior of firmly nonexpansive mappings, *Proc. Amer. Math. Soc.* 101 (1987), 246-250]. From this result we obtain effective uniform bounds on the asymptotic regularity for firmly nonexpansive mappings. Besides, we derive effective rates of asymptotic regularity for sequences generated by two algorithms used in the study of the convex feasibility problem in a nonlinear setting.