

Vladimir V. Goncharov (goncha@[omit]uevora.pt), Departamento de Matemática, Universidade de Évora, rua Romão Ramalho 59, P/7000/671 Évora, Portugal, *Neighborhood Retractions of Nonconvex Sets via Sublinear Functionals*.¹

Abstract. For a closed subset S of a Hilbert space $(H, \|\cdot\|)$ and for a sublinear functional $\rho : H \rightarrow \mathbb{R}^+$ which is equivalent to the norm $\|\cdot\|$, we give conditions guaranteeing existence and uniqueness of the nearest points to S , in the sense of the semidistance generated by ρ . This permits us to construct a continuous retraction onto S which is well defined in a neighborhood $\mathcal{U} \supseteq S$, and the structure of \mathcal{U} depends on some balance between the local strict convexity modulus of ρ (or the second differential of its dual functional) and the (local) curvature of the boundary ∂S . This work was inspired by a result of Giovanni Colombo and Peter Wolenski and contains its generalization.

Biographical Sketch. Vladimir Goncharov graduated from Irkutsk State University in Russia in 1984. He received his Ph.D. in 1992 from the Council of Irkutsk Computing Centre, under the supervision of A.A. Tolstonogov. From 1992 to 1997, he was a senior researcher and head of the Laboratory of Differential Inclusions at the Irkutsk Computing Centre. In 1993 and from 1997 to 1999, he held postdoctoral fellowships at the International School of Advanced Studies (SISSA) in Trieste, Italy where he worked in the Sector of Functional Analysis under the supervision of A. Cellina. Since 2000, he has been an assistant professor at the Universidade de Évora in Portugal. His scientific interests include Nonlinear, Multivalued and Nonsmooth Analysis, Differential Inclusions, Calculus of Variations, and Control Theory. He has authored 25 papers in such international journals as *Nonlinear Analysis*, *Set-Valued Analysis*, *Convex Analysis*, *Nonlinear Differential Equations*, and *Topological Methods in Nonlinear Analysis*, some of which are joint with A.A. Tolstonogov, G. Colombo, and A. Ornelas. Goncharov is currently supervising two Ph.D. students.

¹The [omit] should be omitted when sending email. It was included here to avoid automatic “harvesting” by spam-list makers.