Poisson Brackets with Prescribed Casimirs
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Abstract. We consider the problem of constructing Poisson brackets on smooth manifolds $M$ with prescribed Casimir functions. If $M$ is of even dimension, we achieve our construction by considering a suitable almost symplectic structure on $M$, while, in the case where $M$ is of odd dimension, our objective is achieved by using a convenient almost cosymplectic structure. Several examples and applications are presented.