

[1]相升海,王达成,张健,等.火箭深弹水中阻力特性研究[J].弹箭与制导学报,2012,1:139-141.

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## 火箭深弹水中阻力特性研究(PDF)

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Title: The Research on Resistance Characteristics of Underwater Rocket Depth Charge

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摘要: 为了进一步对火箭深弹的减阻方式进行研究,利用Fluent研究了火箭深弹在水下运动的阻力特性,得到并分析了火箭深弹下潜速度及其相对应的空泡状态与阻力特性的关系。研究表明,阻力成分中压差阻力占主要部分。当超空泡存在时,随着速度的减小,压差阻力增大,粘性阻力减小,阻力系数增大;当超空泡溃灭后,压差阻力减小,粘性阻力增大,阻力系数迅速减小。将仿真数据与水洞试验数据进行了对比,两者基本一致。

Abstract: In order to reduce resistance of the rocket depth charge in the water, resistance characteristics of the rocket depth in the water were studied with Fluent. The relationship between submergence speed as well as corresponding bubble state of rocket depth charge and resistance characteristics was obtained and analyzed. The results show that resistance caused by pressure difference is the main part of resistance components. With the supercavity, when the speed decreases, resistance caused by pressure difference increases, and viscous resistance decreases, and the resistance coefficient increases gradually. After the supercavity collapses, resistance caused by pressure difference decreases, and viscous resistance increases, and the resistance coefficient decreases rapidly. Comparing the simulation data with the data of water tunnel experiment, the two are essentially the same.

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