

Title: Selected gravitational effects in the Universe

Author: Mgr. Tomáš Franc

Department: Astronomical Institute of Charles University

Supervisor: doc. RNDr. Marek Wolf, CSc.,  
Astronomical Institute of Charles University

Abstract: In this Thesis we have given an overview of tidal phenomena with their explanations and also explained the gravitational assist with examples of its use. We have created many pictures and 17 animations for better understanding of these topics. This part of the Thesis is focused on high school students and their teachers, it can be used by teachers for their inspiration for lessons, or students and more generally people interested in these topics can read this part as a study text. The main part of the Thesis is the result of research conducted on 13 high schools in the Czech Republic. 800 students took part in the research; its purpose was to find out students' knowledge of tidal phenomena and the gravitational assist. The research was carried out in the form of questionnaires.

Keywords: gravity, tidal phenomena, gravitational assist, pedagogical research