



Πανεπιστήμιο  
Κύπρου

ΤΜΗΜΑ ΦΥΣΙΚΗΣ

Το Τμήμα Φυσικής του Πανεπιστημίου Κύπρου  
σας προσκαλεί την

**Παρασκευή, 10 Μαΐου 2019, ώρα 15:00**  
στην αίθουσα B228, στο κτίριο 13 στην Πανεπιστημιούπολη

*στην παρουσίαση της Διδακτορικής Διατριβής του Γιώργου Χαρίτου*

***“<sup>57</sup>Fe Mössbauer spectroscopic studies on β-thalassaemia using a mouse model for β-thalassaemia and red blood cell samples from patients”***

β-thalassemia is an inherited anaemia caused by mutations of the β-globin gene. Currently, iron overload causes most of the mortality and morbidity associated with the disease. In this work, <sup>57</sup>Fe Mössbauer spectroscopy (MS) was used for the study of the β-thalassaemia, utilising for the first time a mouse model for β-thalassaemia, as well as blood samples from patients.

The MS spectra from the blood samples of the thalassaemic mice showed significant amounts of ferritin-like iron that might reflect the reticulocyte count. Increased concentrations of ferritin-iron were also found in various organs, especially in the kidneys where a 16x increased was observed. Furthermore, differences were observed in the structure of ferritin’s mineral core between thalassaemic and wild-type mice.

The MS spectra from the red blood cells of the thalassaemia patients showed the existence of significant amounts of ferritin-like iron, mainly in the samples from the β-thalassaemia intermedia patients, where 82% of them showed evidence of this iron complex. In the same time, β-thalassaemia intermedia patients were found to have higher liver iron concentration (LIC) when compared to the β-thalassaemia major patients, although they had on an average about half the serum ferritin levels.