

Nuclear Lunch Questions 21/10/2020

Papers:

PIXE analysis of synthetic turf by Vineyard *et al.*,

Another pathway for firefighter exposure to per- and polyfluoroalkyl substances: firefighter textiles by Peaslee *et al.*

Questions:

- 1) How is the proton beam energy selected for PIXE? What is the useful energy range? [**Nisha**]
- 2) Why are the Br peaks at different energies in Figures 3 and 4? [**Holly**]
- 3) How are different elements identified using PIGE? [**Kristyn**]
- 4) How does a silicon drift detector work? [**Shiv**]
- 5) Why is the aluminum foil placed in between the sample and the X-ray detector? Why is 80microns chosen for the thickness? [**Mahesh**]
- 6) Why can't the PIGE set-up in Peaslee *et al* measure fluorine concentrations greater than 30%? How would the set-up have to be modified to allow greater concentrations to be measured? [**Justin W.**]
- 7) What are some other examples of PIXE and PIGE applications? [**Alexandra**]
- 8) What are the advantages and disadvantages of PIXE and PIGE compared to chemical analysis techniques? [**Gula**]
- 9) What are other nuclear-physics based elemental/isotopic analysis methods? And what are their strengths and limitations? [**Joey**]