

**Proposta de disciplina do PPGFis**  
**FIP00000 - Tópicos Em Física Da Matéria Condensada: Irradiação De**  
**Células In Vitro Com Feixe De íons**

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- **Semestre:** 2021/1
  - **Carga horária semanal:** 2
  - **Créditos:** 2
  - **Pré-requisitos:**
  - **Professor/Responsável:** Pedro Luis Grande
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## **Súmula**

Propiciar ao aluno conhecimentos básicos sobre da irradiação de células com feixe de partículas. Principais equipamentos e métodos. Identificação das quebras duplas do DNA por microscopia de fluorescência. Microdosimetria.

## **Objetivos**

Entendimento básico da irradiação de células com feixe de partículas pesadas (H He, C, ..) para fins tratamento câncer.

## **Programa**

- I) Equipamentos : Acelerador, Detectores, Focalizador
- II) Comparação entre micro-feixe e feixe estendido
- III) Qualidade do feixe e controle de dose
- IV) Método de microscopia de fluorescência, marcadores fluorescentes
- V) Medidas da fração de sobrevivência
- VI) Medidas individuais

VII) Determinação de LET e RBE

VIII) Simulação Monte-Carlo

IX) Modelos matemáticos/estatísticos para dano no DNA e taxa de sobrevivência

X) Efeito de nanopartículas no aumento da RBE

## **Método de Trabalho**

Seminários dados pelos alunos

## **Avaliação**

Presença e seminário

## **Bibliografia**

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