

# Quantum Field Theory I: PHYS 721 (Fall 2021)

## Think — Pair — Share

Tangereen Velveteen Bailey Claringbold  
William & Mary

### Instructions

These quick quizzes are low-stakes assessment tools to help cement your understanding of our material. They will help you remember the key facts and can serve as a study guide to help you focus on material you are less familiar with. These quizzes do not contribute to your grade and are for your own use.

1. **Without looking at your notes or the textbook, and without consulting with your neighbour**, write your answer to each question in the **first column**.
2. Discuss with your neighbour and use your notes or the textbook as needed to answer each question and write your answers to each question in the **second column**. You should complete the second column, but do not add anything to your first column.

There are three questions.

### Question 1

Today, we'll be studying Møller scattering in Scalar QED, in which two electrons scatter off of each other, often written as  $e^-e^- \rightarrow e^-e^-$ . Draw the diagram or diagrams relevant to this process.

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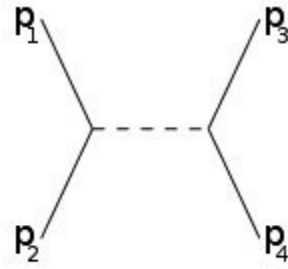
### Question 2

Why do we care about Møller scattering?

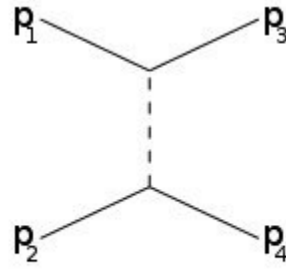
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### Question 3

You've previously seen Mandelstam variables, two of which are related to the diagrams below. There's a third channel, the  $u$ -channel. Draw the form of the  $u$ -channel.



s-channel



t-channel

