In his new film, Tom Hanks saves the Eternal City from an ‘antimatter bomb’ Anne McIlroy says would likely fizzle (like the movie)

In Angels & Demons, the cinematic followup to The Da Vinci Code that opened yesterday, villains go to great lengths to steal half a gram of antimatter from CERN, the European Organization for Nuclear Research.

Why? Because they plan to use it to annihilate the Vatican.

The problem is, antimatter — a mirror image of matter — is not something that you can just slip into your pocket, says Roger Moore, a physicist from the University of Alberta who works at CERN.

In the movie, the bad guys break into the facility on the Swiss-French border near Geneva and make off with the antimatter in a magnetic bottle that looks like a space-age lantern. But, according to Dr. Moore, “you would actually have to steal something the size of a building, and have a very large power supply.”

That would make a quick getaway difficult.

Dr. Moore is part of the ATLAS project, one of the experiments planned for the Large Hadron Collider, a $10 billion particle accelerator designed to recreate conditions that existed in the earliest moments of the universe.

The film’s director, Ron Howard, consulted physicists at CERN about the script, based on author Dan Brown’s prequel to his huge bestseller, and Dr. Moore says the basic premise of the plot is accurate. A milligram of antimatter is equal to 43 tonnes of TNT and half a gram of it would be enough to wipe out the Vatican and the entire city of Rome. “If you do the calculations, they are right. I think they have done a great job. It is great to see them bringing particle physics to the big screen.”

Not that antimatter is always dangerous. “As you are sitting here,” he explains, “one particle passes through a cubic centimetre of you every second, and slightly less than half of those particles are actually antimatter. They pass through us all the time without causing any problems.”

Antimatter helps doctors treat the sick. It is used in positron emission tomography, or PET scans, which can detect cancer or reveal whether it has spread.

But combine a whole bottle of the stuff with matter — and arrivederci, Roma.

Fortunately, the Eternal City has an even bigger scientific fact in its favour, Dr. Moore says. The thieves would break into CERN only to discover it has nothing like half a gram of antimatter. In fact, he and his colleagues would need 10 million years to produce that much.

“It would be a pretty boring film,” he says, “if they used a realistic production schedule.”

Anne McIlroy is The Globe and Mail’s science reporter.