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The hunt for Dark Matter

The Battleship game of particle physics

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Dark Matter is a physical phenomenon, which has bothered physicists for decades. The first observations for a new invisible type of Dark Matter were made in the 1930s. However, how could one observe something, that is invisible? If one observes an arrow flying through the air straight, then suddenly sees a change in direction, it is logical that the arrow has to be influenced by something. In our case similar observations were made in space, where large objects were influenced by the gravitation of an invisible mass. This invisible, gravitational mass is called Dark Matter.
The exploration of the Dark Matter's character turned out to be very complicated and is still ongoing. Over the years, many theories were constructed and many of them were not coincident with observations. The most recent one is the introduction of a new particle, which is called weakly interacting massive particle or just WIMP. Unfortunately, this new fellow is not very easy to find and therefore, much effort is required.
Large research facilities were founded and huge machines build to find a Dark Matter particle. The problem with this search is that, no one knows where to look and what to look for anyway. Unfortunately, we do not know how the WIMP looks like. It could be large or small, light or heavy or have any other properties. Therefore, we do not know where to look. This lack of information makes the search for a Dark Matter particle like playing an extremely difficult round of Battleship. The problem is that we cannot only hit points like A6 or F3, but also every interim value, like a BCC1.531. To have a chance against this well hidden ship, physicist use super computers, which look for indicators, how Dark Matter looks like.
In this project I yield another advantage in the Battleships match by improving the computational search for possible candidates. This was done by only looking at simple, close-by points like F3 and F4 on our map and then assuming that the intermediate zone has to look comparable and is a mixture of those two points. It turned out that this approach is reasonable under certain conditions and can, therefore, help to find a Dark Matter particle by making computer simulations faster.