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Project 03 - Highly Efficient Low-Cost Polymeric Solar Cells

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Organic Photovoltaics versus Inorganic Photovoltaics

I work mainly on organic photovoltaics, on the modelization of new polymers that could be used in photovoltaic devices. So I was very interested in comparing the usefulness of organics with other technologies. At present, silicon based solar cells have a higher efficiency than polymer based ones. They are also durable, whereas the lifetime of most polymer cells is still unknown. However, it is worth it to develop organic photovoltaics, because they have a lower production cost compared to silicon devices. They are also flexible, which means that they can easily be fitted in all kinds of devices. Besides silicon and polymers, there are other alternatives for harvesting solar energy. Some of these technologies use rare elements such as ruthenium. These technologies can be interesting, however they are costly and use materials which can be very difficult to obtain. In many cases, the entire world supply of these elements would not be enough to fulfill our energy needs, so they could only ever be considered as supporting technologies.