

University of Groningen

Growth of binary oxides on Si substrates

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DOI:
[10.33612/diss.180860479](https://doi.org/10.33612/diss.180860479)

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2021

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Antoja Lleonart, J. (2021). *Growth of binary oxides on Si substrates: solid solutions of SiO₂-GeO₂ and HfO₂-ZrO₂*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.180860479>

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1. When looking for a unique solution to a new, complex problem, a balance must be found between trying to complement the strictly necessary data with one's own reasoning and gathering an overly redundant body of data.
2. Results that are not well understood, as well as conjectures for them, should still be published with some urgency. If not publishable by themselves, then they can only accompany other research publications. In order to expedite the dissemination of these results, a flexible mindset will be necessary from the community.
3. Do not let the physicists fool you: nothing in the world is just a mass on a spring!
4. Hempel's paradox roughly goes like this: if we propose that all ravens are black, observing a red traffic light can be considered supporting evidence to our proposition. This is relevant to research work: different scientists levy different criticisms to the paradox depending on previous knowledge and the philosophers to whose theories one subscribes. Thus, also for different scientists, the bar for the same datum to support a claim can be extremely low or impossibly high.
5. With little exception, when speaking to an audience, especially one in a different room, controlling the pace and momentum of the talk is as crucial as its contents. A scientific talk should resemble a poetry slam rather than the public reading of an article.
6. The COVID-19 pandemic has served to highlight harsh truths about working as a scientist. That quality conferences and meetings do not require travel to holiday resorts. That it is a privilege not only to operate a system in the lab, but to be in the lab at all. And that at a given point in time, a lot of scientists will be sitting on at least an article's worth of publishable data.
7. In polycrystalline samples, "random orientation" is sometimes taken to be the opposite of "preferred orientation" or "texture". This is a misnomer and, when simplicity is not a requirement, it should be replaced by its more accurate version: "uniformly random orientation".
8. In the lab, control software often contains some variation of "One action at a time", a safeguard to prevent a system from trying to simultaneously perform operations that should be mutually exclusive. Operators should heed this reminder as well, even when not near said system.
9. Religion has no place in the lab in the same way that politics has no place in the lab. This is sometimes justified by the idea that these two are intersubjective realities while science is objective. We should remember that science is very much human as well, only with the quirk that it often describes the world correctly.
10. Plans have a tendency to ignite when brought into contact with reality. Even with good project design, improvisation skills determine success to a large degree.