Sometimes things go wrong. We are all imperfect humans, trying best we can to live up to the ideals of scientific methodology. It even happens that published material contains errors, especially with the pressure to publish many papers fast, which all researchers experience today. This document is my own attempt to correct my publication record.

I think you are not a bad scientist just because you are wrong sometimes. On the contrary, constantly evaluating your standpoint and changing your mind now and then, especially in relation to new arguments and studies, is to me a sign of being a good scientist. However, I also believe that one has a responsibility to let other people know any errors or issues that have been found in existing published material. Hence the creation of this document, which will be updated continuously and available at my webpage.

Note that besides obvious errors I also include "issues" which have been raised by others and discuss criticism, even if it does not really alter the conclusions strongly in my opinion.

If a paper would be found to contain serious flaws on important content that influences the results, I will try to publish a correction with the journal. If something has gone terribly wrong so that the conclusions are not reliable at all, the paper may of course even be retracted.

If I include an entry in this document or not depends to some extent on whether I am corresponding author compared to just being a coauthor. I think coauthors have limited responsibility for content in comparison with the corresponding author.

Enzymatic polymer brush interfaces for electrochemical sensing in biofluids (ACS Applied Bio Materials 2025)

• In Figure 2, the NHS ester has a sulphonate group, but actually this type of NHS was not used (as stated in the experimental section).

Stable trapping of multiple proteins at physiological conditions using nanoscale chambers with macromolecular gates (Nature Communications 2023)

• In Figure 3b, the numbers on the axis were somehow lost when the publisher generated the final figure. The x-axis ranges to 85 min and the y-axis to 1.5 nm.

Surface plasmon resonance sensing with thin films of palladium and platinum - quantitative and real-time analysis (Physical Chemistry Chemical Physics 2022)

• In Figure 4A, "nm" should of course be degrees (as stated in the text).

Control of polymer brush morphology, rheology, and protein repulsion by hydrogen bond complexation (Langmuir 2021)

• In the supporting information, Equation 4 should not have a minus sign (the dissipation should of course increase).

High-contrast switching of plasmonic structural colors: inorganic versus organic electrochromism (ACS Photonics 2020)

• In Figure 3C, the values on the x-axis are not correct and actually the scaling between extinction and charge transfer is not linear at high extinction values (2 or more). It is, however, very close to linear in the range where we typically operate and where the optimal contrast lies, so this does not influence the conclusions.

Generic high-capacity protein capture and release by pH control (Chemical Communications 2020)

• The text is a bit misleading at one place where it says "No release was observed upon rinsing with water and not even when exposing the surface to biological solutions (tested up to ~1h)." The pH of the water was not adjusted, but it was set to 5 for the diluted serum since there are buffering species inside. The purpose was to show that serum proteins did not replace already bound proteins. The role of pH of serum is discussed further in our later work with electrochemical control (Angewandte Chemie 2022).

• An Acknowledgements section is missing in this paper. The work was financed by the Knut & Alice Wallenberg Foundation (Academy Fellow 2015.0161), the Swedish Research Council (project grant 2016-03319) and the Erling-Persson Family Foundation (Starting Grant 2017).

Nanoplasmonic sensor detects preferential binding of IRSp53 to negative membrane curvature (Frontiers in Chemistry 2019)

• The scale bar in figure 2A should obviously say "nm" (otherwise it would be a microplasmonic sensor).

• The concentrations in the legend for figure 4A should be opposite (lower for green and purple graphs).

Quantitative analysis of thickness and pH actuation of weak polyelectrolyte brushes (Journal of Physical Chemistry C 2018)

• It is mentioned that plots of SPR and TIR angle responses vs each other is a "standard for what is to be considered a fully noninteracting probe". However, it is actually possible in rare cases that a molecule does interact with the surface even if the plot shows no hysteresis. As we show in later work (ACS Sensors 2022), this occurs if the binding and unbinding are both faster than the liquid exchange in the system. Still, the SPR-TIR plots are very useful and hysteresis does prove there is an interaction. (It is just that the lack of hysteresis does not prove absolutely that there is no interaction.)

Gating protein transport in solid state nanopores by single molecule recognition (ACS Central Science 2018)

• Some people have discussed with me if the "strong" binding state could simply be primary adsorption to the gold underneath the brush. This is supported by some tests we performed after the study, which showed that NaOH washing can at least to some extent remove proteins that are otherwise irreversibly bound to gold (without any polymers). What speaks against this is the high grafting density, which does not leave much free surface exposed (a few nm between grafting sites, to be compared with the antibody size). Nevertheless, the antibody may indeed be "touching" the surface to some extent when strongly bound, i.e. the interaction is perhaps not ONLY associated with the PEG. However, the strongly bound antibodies should be interacting with the PEG, otherwise the observed binding kinetics (the peak in the association phase) do not make sense.

Superior LSPR substrates based on electromagnetic decoupling for on-a-chip high-throughput label-free biosensing (Light: Science & Applications 2017)

• The y-axes in figure 5 have a missing letter, which unfortunately leads to a very inappropriate physical quantity…

Surface plasmon resonance methodology for monitoring polymerization kinetics and morphology changes of brushes - evaluated with poly(N-isopropylacrylamide) (Applied Surface Science 2017)

• The text and legend says that equation 1 was used for the fitting in figure 1b. This is misleading since equation 1 does not have an explicit time dependence. One can assume d grows linearly as a first step to determine the saturation value or use equation 3. Both give the same $S\Delta n$ product of 10 degrees. However, as described one must do a more careful analysis when determining $d(t)$ as well as the parameters α and β.

• The estimate of the initial polymerization rate to 1.4 monomers per second based on the thickness evolution and the monomer size is not so great since it relies on the assumption of growth perpendicular to the surface. Since the chains are "floppy" to some extent the actual polymerization rate should be higher.

• The scheme in the supplementary material misses an arrow pointing backwards representing the regeneration step when ascorbic acid changes the oxidation state of the Cu complex.

Fabrication and characterization of plasmonic nanopores with cavities in the solid support (Sensors 2017)

• On the bottom of page 4: "This is important to take into account since it influences how large cavities that can be prepared for the case of nanowells." The part "for the case of nanocaves" should have been deleted. The text refers to nanocaves, not nanowells.

Strongly stretched protein resistant poly(ethylene glycol) brushes prepared by grafting-to (ACS Applied Materials and Interfaces 2015)

• Someone pointed out that PEG films are hygroscopic, which may influence the quantification by SPR in air and lead to inaccurate grafting densities. This is an excellent comment which should have been addressed in the paper. However, the effect of water in the PEG should be negligible based on literature data (see Baird et al. Journal of Pharmaceutical Sciences 2010).

Sensing applications based on plasmonic nanopores: The hole story (Analyst 2015)

• In the introduction I mention that "there appears to be no [similar] review from the last 5 years or so" but I completely missed the review by C. Escobedo in Lab on a Chip 2013. Sorry about that! However, I think the two reviews complement each other well since his paper focuses much on fabrication and flow-through.

Plasmonic nanopores in metal-insulator-metal films (Advanced Optical Materials 2014)

• During the time of writing this manuscript, we discovered that the literature data we have used for the permittivity of Au (Etchegoin et al. J. Chem. Phys. 2006) is "incorrect", i.e. there is an erratum published for that paper because the values it states are actually NOT the best fit to the data by Johnson & Christy. In principle this issue applies also to the paper in ACS Nano 2012. The effect is small overall, but the differences in calculation results are noticeable, at least for the predicted absolute resonance wavelengths (10-30 nm). Importantly, the corrected values have no significant effect on the calculated resonance SHIFTS (~1%). Further, judging from the overall variations in literature data for Au permittivity it is actually far from obvious that the "correct" values (those that do fit J&C data the best) are more suitable for describing our particular Au films. In fact, J&C are known to have the most extreme values e.g. for the Drude damping of Au (see discussion in Nano Letters 2011 and my book).

• It is mentioned that there was no electrical contact between the Au films, but this feature turned out to be hard to reproduce. We suspect this is related to process variations in the LPCVD deposition of silicon nitride. As time passes the machine used undergoes changes in service rounds etc. which influences the properties of the deposited layers. This variation is also noticeable as membranes are sometimes very robust and more fragile in other batches.

• The equations for the electric field components in the SI have some errors: The second row is meant to be for the E_x component (not E_z). Also, the index j for k_x should be removed (k_x is universal for all layers, which is the point of the surface wave).

Plasmonic Biosensors (IOS Press 2012)

• Figure 4.3 has squares in the chemical structures due to some error when handling the graphics.

• Equation 5.14 should have the terms in the denominator switched (sign inversion).

• Equation 6.5 should not have the square root of n_m (just n_m^3).

• Equation 6.22 should have k_0 instead of k.

• Section 7.4 discusses the two surface plasmon modes in metal films of finite thickness. It incorrectly gives the message that the bonding mode is what is important for plasmonic biosensors. This is not true since, strictly speaking, it is the antibonding mode which is excited in regular SPR sensors operating in total internal reflection. (The bonding mode is excited mainly by grating coupling mechanisms since it has a dispersion that does not coincide with any of the photon lines for the semi-infinite dielectrics.)

• Equation 8.5 has the integer counter j on the wrong side.

• Figure 13.5 and related discussion has some errors since the modes are identified wrongly. The antibonding mode is, of course, at higher energy and shorter wavelength.

Optical properties of nanohole arrays in metal-dielectric double films prepared by mask-on-metal colloidal lithography (ACS Nano 2012)

• Letters "A" and "B" are not showing properly in Figure 2.

• In the supporting information it is mentioned that the blueshift after RIE etching is "relatively small" (9 nm) considering the inhomogenous field and the large contrast in RI (from 2.24 to 1). The explanation is claimed to be that the holes only represent ~10% of the surface area, so the effective change in RI is still low. However, careful calculations show that the expected shift is still almost 50 nm. The data presented in the supporting information was actually a statistical anomaly. Further tests have shown that the blueshift is indeed typically ~50 nm. The uncertainty in the data is likely associated with the overall poor reproducibility of RIE processes.

Nanoplasmonic sensing of metal–halide complex formation and the electric double layer capacitor (Nanoscale 2012)

• Equation 5 has a misleading look. The k^3 term should be divided by 6π and the k^2 term with $2\pi D$.

Electrochemical crystallization of plasmonic nanostructures (Nano Letters 2011)

• As people have pointed out, the title is somewhat misleading since the paper is not about "crystallization" of gold induced by electrochemistry. The metal is of course already present and undergoes a grain growth process, which means that "recrystallization" is a better term. Although this is obvious when one reads the paper, just looking at the title can lead to misunderstandings.

• It is mentioned that "The immediate peak shifts observed in response to switching between high and low potential are attributed to the capacitive charging of the metal…" However, in later work (Nanoscale 2012) we showed that the charging effect on the spectrum is actually small and that chemical interactions with ions likely dominate the optical response, even at low potentials.

• Reference 34 should have the year 2010.

Nanoplasmonic biosensing with focus on short-range ordered nanoholes in thin metal films (review) (Biointerphases 2008)

• References 98 and 99 refer to the same article.

Generic surface modification strategy for sensing applications based on Au/SiO₂ nanostructures (Biointerphases 2007)

• The caption of figure 3 says that the system was rinsed with 3 mL "butter". This would have been an interesting experiment indeed, but I am quite sure that it was in fact a buffer solution that was used for rinsing even if I did not perform that experiment.

Localized surface plasmon resonance sensing of lipid-membrane-mediated biorecognition events (Journal of the American Chemical Society 2005)

• The surface functionalization strategy in this paper (biotinylated BSA) most likely does not prevent vesicle adsorption on Au as well as suggested, especially in the presence of Ca^{2+} (as was observed in later QCM-D experiments). Other coating such as PEG are better for this purpose as shown in later work (Advanced Materials 2008). The reason that vesicles still only are visible on SiO_2 inside the holes when using AFM could be that the tip moves them away when scanning in contact mode, while the walls of the holes makes the vesicles stay there when imaged. This means that the conclusion on the sensitivity enhancement for SiO_2 compared to Au is a bit shaky, quantitatively speaking. Later work (Biointerphases 2007) with better surface chemistry is probably more reliable.