

Introducing Milena Damrau and Martin Skrodzki

Text: Milena Damrau & [Martin Skrodzki](#) | Section: [About w/k](#)

Abstract: The core editorial team of w/k strives to win specialists for certain aspects of the major topic Art and Science, which have not yet been sufficiently presented in the online journal. Recently, Milena Damrau and Martin Skrodzki joined the team, whom we warmly welcome. In their article, they explain their motivation to expand the representation of mathematics and arts collaboration in w/k in the future.

Our collaboration with w/k started after Martin posted about a workshop on artificial intelligence and art in a Facebook group of the German National Academic Foundation. Anna-Sophie, who also belongs to the alumni of the foundation, saw the post, got interested and contacted Martin to grab a cup of coffee. Over said cup, she told him about the online-journal w/k and Martin subsequently wrote an article on [AI and Arts](#) for w/k, which was published in December 2019.

In 2020, we organised a first minisymposium on *Mathematics and Arts* at the annual conference of the German Mathematical Society. Since the conference generally does not publish any proceedings, we were looking for an alternative outlet for (some of) the contributions – which we found in w/k. An [article collection on the minisymposium](#) was published in June 2021. The collaboration with Anna-Sophie and Peter on this article was extremely productive, which is why we were very happy to accept their offer to join the editorial team.

Our editorial work will include the supervision of articles on mathematics and arts as well as the occasional publication of our own views on developments in this interdisciplinary field. In the following, we want to briefly introduce the collaborative area of mathematics and arts, to give an idea about what can be expected from our contributions.

At first glance, the fields of mathematics and arts might seem rather separated and difficult to combine. Yet, history is surprisingly rich in examples of such fruitful interplays that date back all the way to the 4th century BC and possibly even to earlier times. In antiquity, Aristotle states that “the chief forms of beauty are order, symmetry, and definiteness, which the mathematical sciences demonstrate to a special degree.” It does not come as a surprise, then, that famous artists throughout history turn to mathematics and dwell from it. Examples range from artists of the renaissance, like Leonardo da Vinci, who created several artistic renderings of geometric structures, to modern artists like Maurits Cornelis Escher, whose work has strong ties to so-called [wallpaper groups](#), the mathematical foundation of crystallographic structures. However, the opposite is also true, that is, mathematicians borrow from artistic concepts. For instance, Johannes Kepler included an engraving of nested polyhedra to relate his computations of the movements of planets to his philosophical world-view while others went so far as to create plaster sculptures to convey their findings on three-dimensional structures, as collected by the [Göttingen Collection of Mathematical Models and Instruments](#).

While collaborations between mathematicians and artists have occurred throughout history, the last decades saw an increase in both conference- and journal formats to further support interdisciplinary interactions. A new event along these lines is a minisymposium on *Mathematics and Arts*, which was organized for the first time at the annual meeting of the [German Mathematical Society](#). Despite the

more than 130-year history of the German Mathematical Society, it was the first one of its kind within the context of an annual meeting. For a detailed discussion of selected contributions of the minisymposium, we refer to the [w/k article](#) we already mentioned. Due to the great response and the very positive feedback by both the speakers and audience members on the first rendition, the joint annual meeting of the German Mathematical Society and the Austrian Mathematical Society in September 2021 saw a [second minisymposium](#) on *Mathematics and Arts*.

As mathematics and arts is an interdisciplinary field, the people who move and act in it are very diverse in terms of their scientific or artistic backgrounds, their education, and their motivations. Some of them create mathematical artwork to better understand the incorporated mathematics, some do it to further explore the mathematics' artistic potentials. In any case, these projects require interdisciplinary knowledge, either within one person or within an acting team. Several of these combinations were present in our minisymposia and we would like to use them as examples in the following.

Consider, for instance, the mathematicians Rachel Quinlan or Joshua Holden who explore mathematical structures via artistic means. In the case of Rachel Quinlan, she uses origami to illustrate different elements of the wallpaper group, following in the path of the aforementioned M.C. Escher. Joshua Holden uses his knowledge on random processes to write computer programs that generate weaving patterns or drum kit solos. Interdisciplinary teams benefit from all members bringing their respective expertise to the project. When Anna M. Hartkopf provides her mathematical understanding of four-dimensional geometries and René M. Broeders adds his experience as artistic lead, truly marvelous [performances](#) arise. The same holds for the sculptor [Teresa Hunyadi](#) who creates marvelous wood-carved renditions of [penrose tilings](#) that are generated by Dave Murray-Rust, an expert in human-algorithm interaction. The case of Aubin Arroyo and Jean-Michel Othoniel was different: Both engaged with so-called wild knots independently: Aubin Arroyo as a mathematician and Jean-Michel Othoniel as an artist. They later found out about their respective work and started a collaboration. This resulted in an exhibition and a [book](#) that the two wrote together.

We hope that you have enjoyed this short glimpse into the world of mathematics and arts. If you want to collect first-hand experience, feel free to reach out to us at dmv.math.art@gmail.com and we will gladly add you to our mailing list, providing details on upcoming events. In case you are curious as to what to expect, the talks from the [first](#) and [second](#) minisymposium are available as playlists on YouTube. Also, we hope that you will enjoy reading our upcoming contributions to w/k, providing more detailed stories from the vibrant intersection of mathematics and arts.

Picture above the text: *Screenshots* (2021). Photo: Milena Damrau & Martin Skrodzki.

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