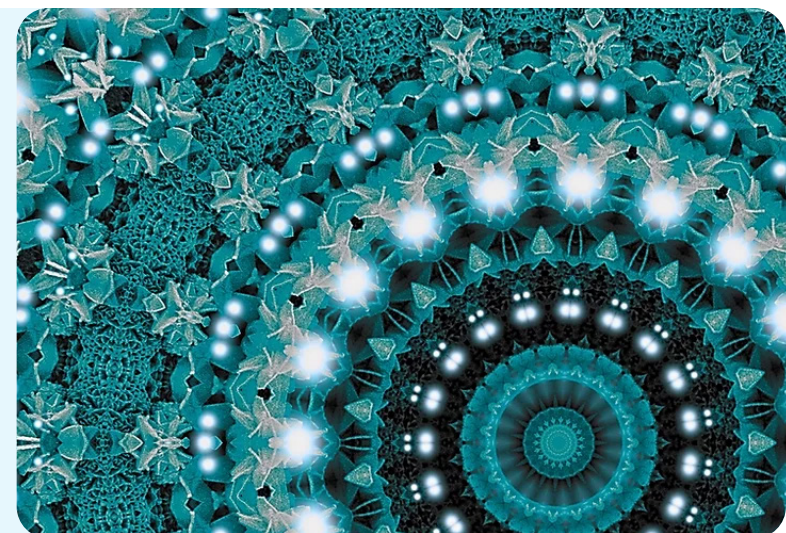


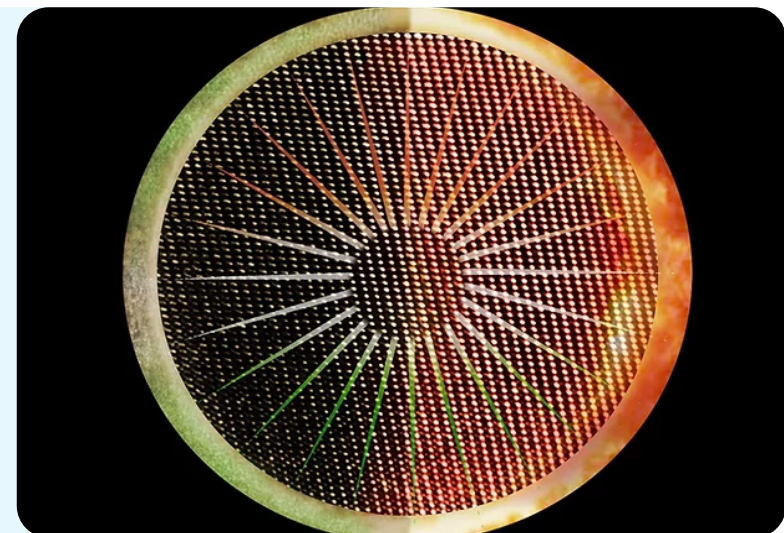
**01 JANUARY**

MON	TUE	WED	THU	FRI	SAT	SUN
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



**06 JUNE**

MON	TUE	WED	THU	FRI	SAT	SUN
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



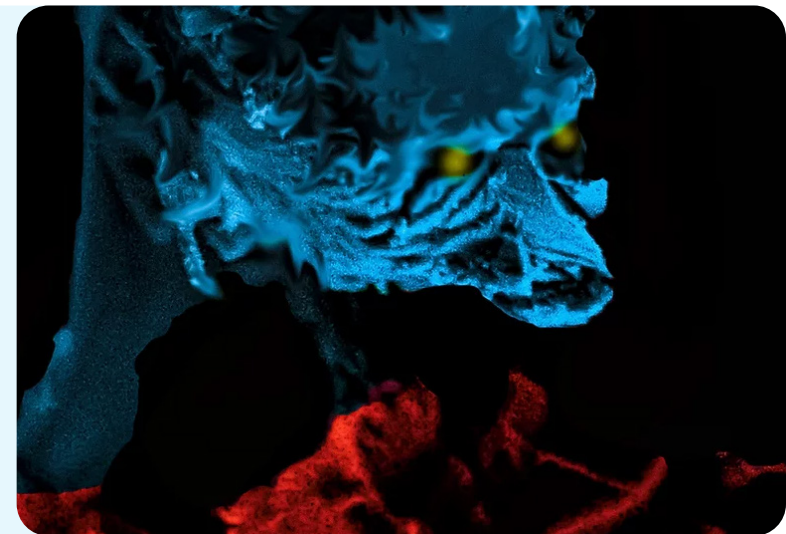
**11 NOVEMBER**

MON	TUE	WED	THU	FRI	SAT	SUN
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				



**02 FEBRUARY**

MON	TUE	WED	THU	FRI	SAT	SUN
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						



**07 JULY**

MON	TUE	WED	THU	FRI	SAT	SUN
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



**03 MARCH**

MON	TUE	WED	THU	FRI	SAT	SUN
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



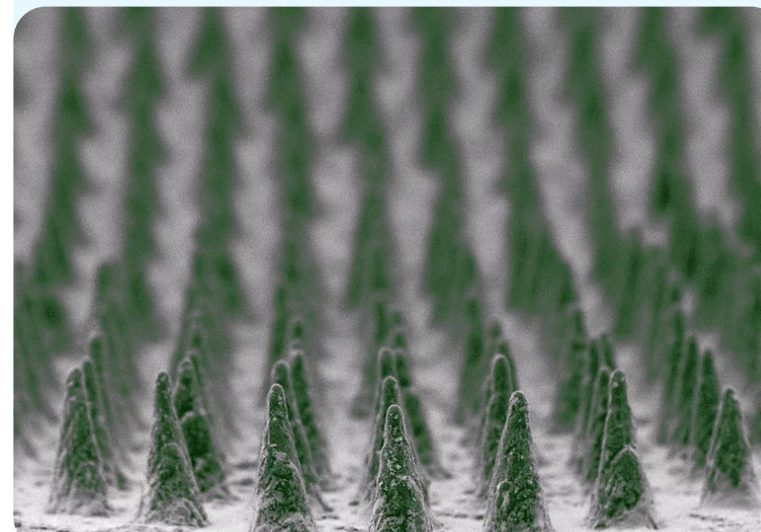
**08 AUGUST**

MON	TUE	WED	THU	FRI	SAT	SUN
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



**12 DECEMBER**

MON	TUE	WED	THU	FRI	SAT	SUN
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



**04 APRIL**

MON	TUE	WED	THU	FRI	SAT	SUN
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	



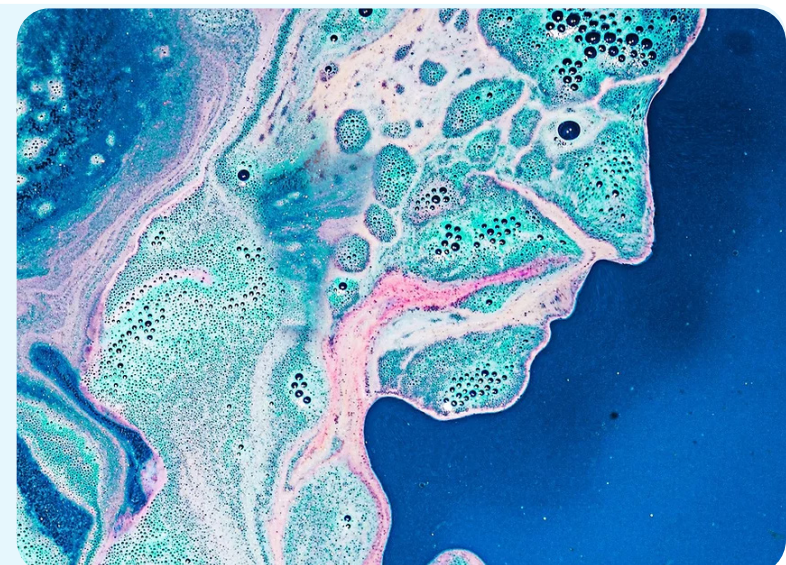
**09 SEPTEMBER**

MON	TUE	WED	THU	FRI	SAT	SUN
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		



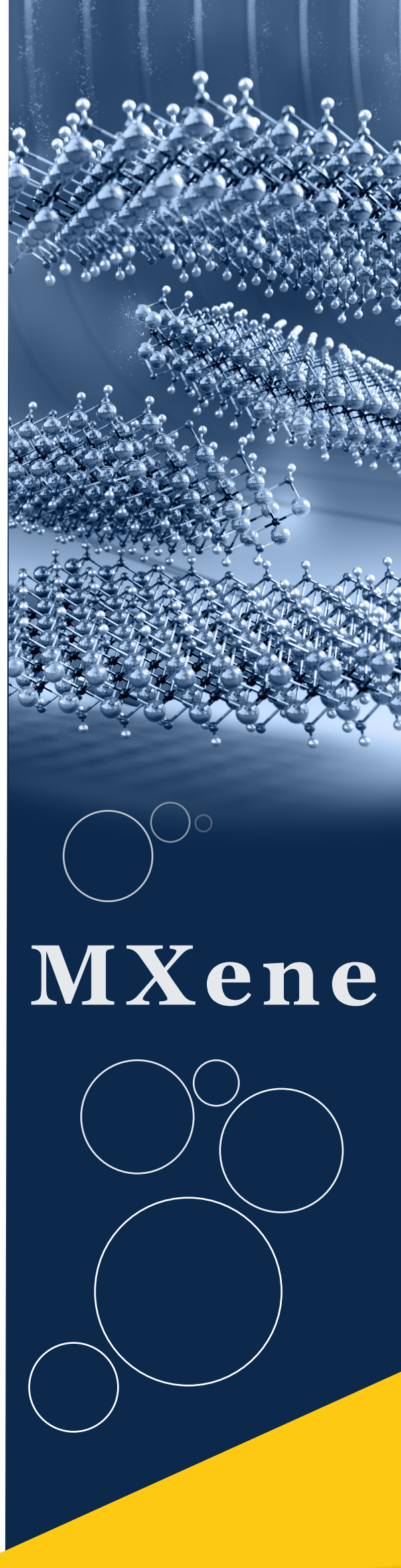
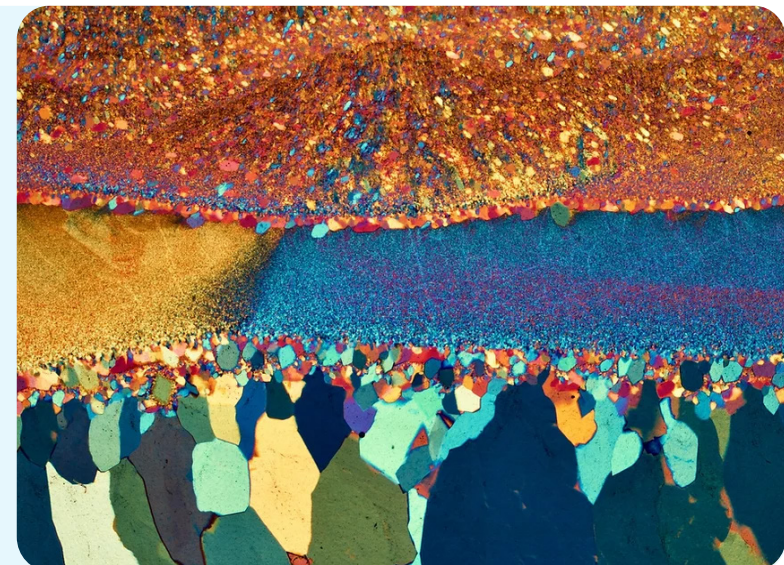
**05 MAY**

MON	TUE	WED	THU	FRI	SAT	SUN
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



**10 OCTOBER**

MON	TUE	WED	THU	FRI	SAT	SUN
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



**MXene**

**2022** Calendar


**DREXEL UNIVERSITY**  
**A.J. Drexel**  
**Nanomaterials Institute**



Dear Colleagues and Friends,

Happy New Year!

Reflecting on another capricious year with COVID-19, I am happy to report that the A.J. Drexel Nanomaterials Institute has stayed exceedingly productive as we've continued to navigate this ever-changing environmental landscape. Our students and alumni remain active in obtaining great jobs, winning national and international awards, publishing in high-impact journals, building impactful collaborations, and participating in exciting sponsored research supported by industry, private foundations, and funding agencies in the US and abroad.

Through the summer Drexel remained virtual, though our lab open and productive with strict guidelines and restrictions set in place. While the sunshine brought us outdoors, we were fortunate to gather as a group for BBQs, hikes, and a highly beneficial DNI retreat where we strategized and strengthened plans for our lab. Drexel's campus reopened for the fall and visiting researchers who were planning to join our team in 2020 finally arrived, along with many other international colleagues. Group members again had the opportunities to travel, attend ACS, MRS and other conferences, and study abroad.

We've offered our week-long MXene course three times in 2021 and received wonderful feedback from about two hundred participants. We are excited for our next course with a new lecture on biomedical applications of MXenes in February '22!

Three outstanding PhD students graduated in 2021 and found excellent postdoctoral positions in prestigious research labs around the world. Asia Sarycheva is now at Berkeley Lab; Kanit Hantanasarisakul is at the Centre of Excellence for Energy Storage Technology, VISTEC, Thailand; and Tyler Mathis is at Université Paul Sabatier in Toulouse, France.

We welcomed many new team members, staff: Jamie Banks, Laura Romano, and Minsoo Kim; postdocs: Ruocun (John) Wang, Robert Lord, and Fulbright Fellow Mohit Saraf; PhD students: Benjamin Chacon, Lingyi Bi as well as brilliant MS students and undergrads who joined us for Co-op and who all were invited to stay and continue research in our lab.

Many of our current members and alumni have also been recognized by awards, highly acclaimed publications, and new positions. Babak Anzori (alumnus) was recently awarded the 2021 WIN Rising Star Award, Ndeye Maty Ndiaye (current) won the L'Oreal-UNESCO Women in

Science award for her work in Africa, Vadym Mochailn (alumnus) received tenure at Missouri Tech, Shuangshuang Zhao (alumna) took a position as Lecturer at the South China Normal University in Guangzhou, Laura Fusco (current) received a Marie Curie Fellowship which includes an extended research stay in our lab, Christopher Shuck (current) was promoted to Research Assistant Professor, and so many other accolades have come from our remarkable team, past and present alike. I'd be remiss to not mention my own awards including the ACS Chemistry of Materials Award, which was accompanied by a dedicated symposium organized by our alumna Kelsey Hatzell, and the MRS Medal, which I have humbly accepted with recognition of support of this outstanding group of scientists.

Drexel University received high marks from US News & World Report in Nanoscience and Nanotechnology, being placed as #9 in the US and #40 in the world - our normalized citation impact is #1 in the world, percentage of total publications that are among the 10% most cited is #1 in the world, and our percentage of highly cited papers that are among the top 1% most cited is #1 in the world! We are also responsible for placing Drexel as #8 in the US and #35 in the world in Physical Chemistry (it includes all energy research and electrochemistry), with the same impressive trifecta of #1s! Drexel Materials Science and Engineering is #39 in the world, again as a result of publishing the highest quality, most novel, and impactful research.

Finally, 2021 was a great year for MXenes. *Advanced Materials* and *ACS Nano* published virtual issues on MXenes to celebrate the 10th anniversary of their discovery. Our MXene papers reporting on discovery of  $Ti_3C_2$  and the Hall of Fame review of MXenes took the first and third positions, respectively, among the most cited papers in *Advanced Materials*, based on citations in the past 3 years. Our paper "2D metal carbides and nitrides (MXenes) for energy storage" has become the most cited article in *Nature Reviews Materials*. This shows that MXenes are becoming the most researched family of materials.

As we step into 2022 and our third year living with COVID-19, it is important to reflect upon these remarkable achievements. We have proven our ability to continuously adapt and learn, and our strength to teach and shape the future of MXenes and nanotechnology.

Best wishes for a happy and HEALTHY new year,



## IMAGE CREDITS

**January:** "Mandala Art", Shalakra Saha, Indian Institute of Technology – Hyderabad, India ([2<sup>nd</sup> place winner of 2021 NanoArtography competition](#))

**February:** "Is There Anybody Out There?", Avishek Karmakar, Drexel University, USA ([Drexel's People Choice of 2021 NanoArtography competition](#))

**March:** "Malachite Meadow", Anastasiia Terebilenko – M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Ukraine ([Honorable mention, 2021 NanoArtography competition](#))

**April:** "Seedlings", Karl Gaff – TU Dublin School of Physics, Clinical & Optometric Sciences, Ireland ([Honorable mention, 2021 NanoArtography competition](#))

**May:** "Precipitation of Life", Shivam Kumar Dwivedi, Abishek M, Indian Institute of Technology Madras, India ([3<sup>rd</sup> place winner of 2021 NanoArtography competition](#))

**June:** "i-Chakra – Redefining the Wheel of Technological innovations", Nitin Arya, Indian Institute of Technology Bombay, India ([People Choice of 2021 NanoArtography competition](#))

**July:** "MXene Accordion", Armin VahidMohammadi and Tyler Mathis, Drexel University, USA ([Advanced Material, Volume 33, Issue 39 of 2021, Front Cover](#))

**August:** "Minuscule Beach", Parvin Fathi-Hafshejani, Seyed Adib Taba, Auburn University, The University of Texas at Dallas, USA ([3<sup>rd</sup> place winner of 2021 NanoArtography competition](#))

**September:** "MXene Lighthouse", Mohit Saraf, Marley Downes, Kyle Matthews, Drexel University, USA ([First place winner of 2021 MRS Fall meeting Science as Art competition](#))

**October:** "The Concert", Bernardo Cesare, Dept. of Geosciences, University of Padova, Italy ([2<sup>nd</sup> place winner of 2021 NanoArtography competition](#))

**November:** "Hydroquinone Micro-Big Bang", José Manuel Martínez López, Química Tech, Mexico ([3<sup>rd</sup> place winner of 2021 NanoArtography competition](#))

**December:** "The Snow Has Fallen Over the Pine Forest", Andreia Sofia Santana dos Santos, Associaco Almascience - Investigacao e Desenvolvimento em Celulose para Aplicacoes Inteligentes e Sustentaveis (ALMA-SCIENCE), Portugal ([1<sup>st</sup> place winner of 2021 NanoArtography competition](#))

The 2021 NanoArtography Competition was sponsored by A.J. Drexel Nanomaterials Institute and Drexel's Department of Materials Science and Engineering, as well as Materials Today and IUPUI Integrated Nanosystems Development Institute.