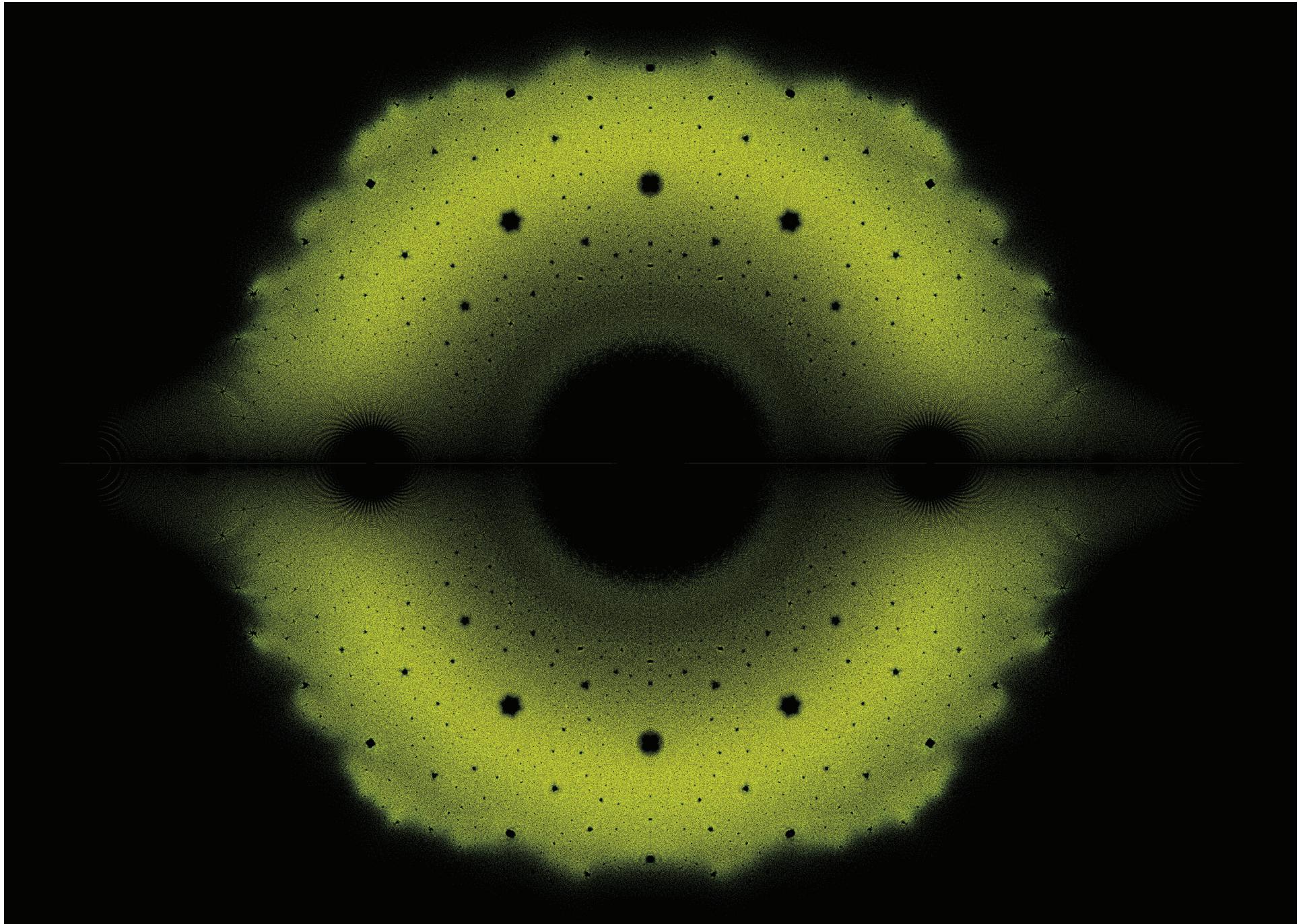


Computational Discovery on Jupyter

**Neil J. Calkin
Eunice Y. S. Chan
Robert M. Corless**



DECEMBER 2023

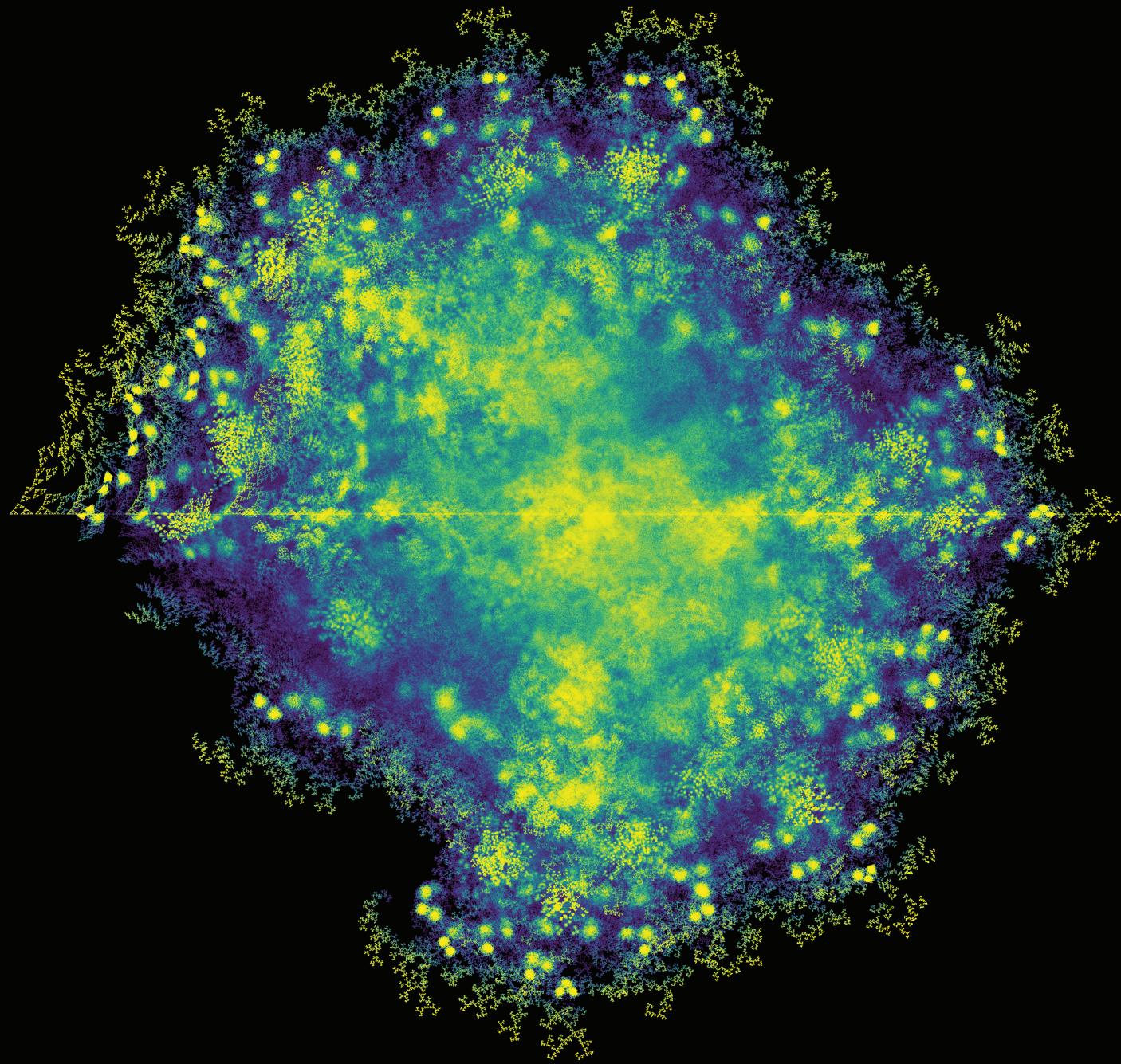
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31						

FEBRUARY 2024

S	M	T	W	T	F	S
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

JANUARY 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
31	1 New Year's Day	2	3	4	5	6
7	8	9	10	11	12	13
14	15 Martin Luther King Jr. Day	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3



JANUARY 2024

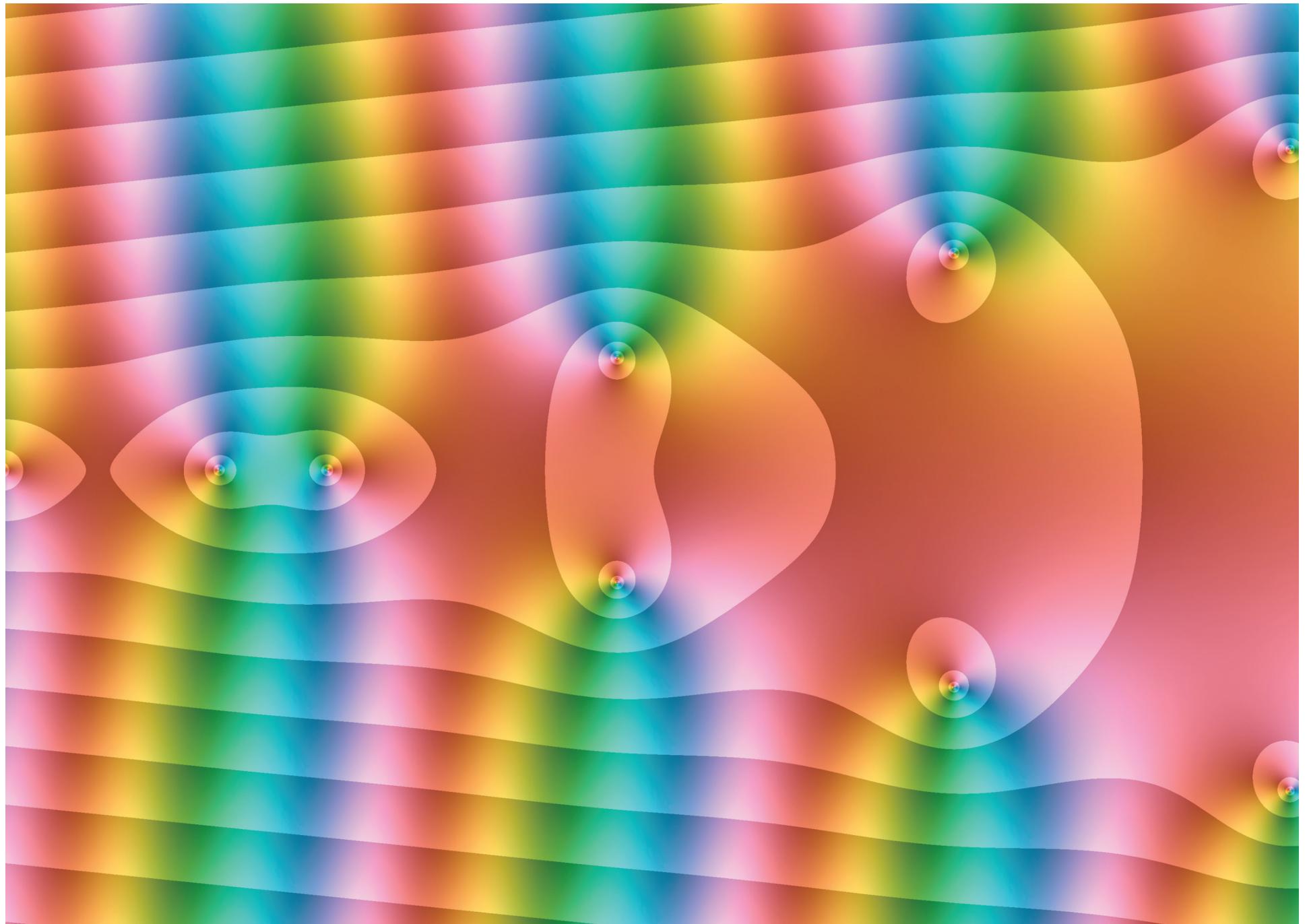
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY 2024

MARCH 2024

S	M	T	W	T	F	S
					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	

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1 First Day of Black History Month	2 Groundhog Day	3
4	5	6	7	8	9	10
11	12	13	14 Valentine's Day	15	16	17
18	19 Presidents' Day (Regional Holiday)	20	21	22	23	24
25	26	27	28	29	1	2



FEBRUARY 2024

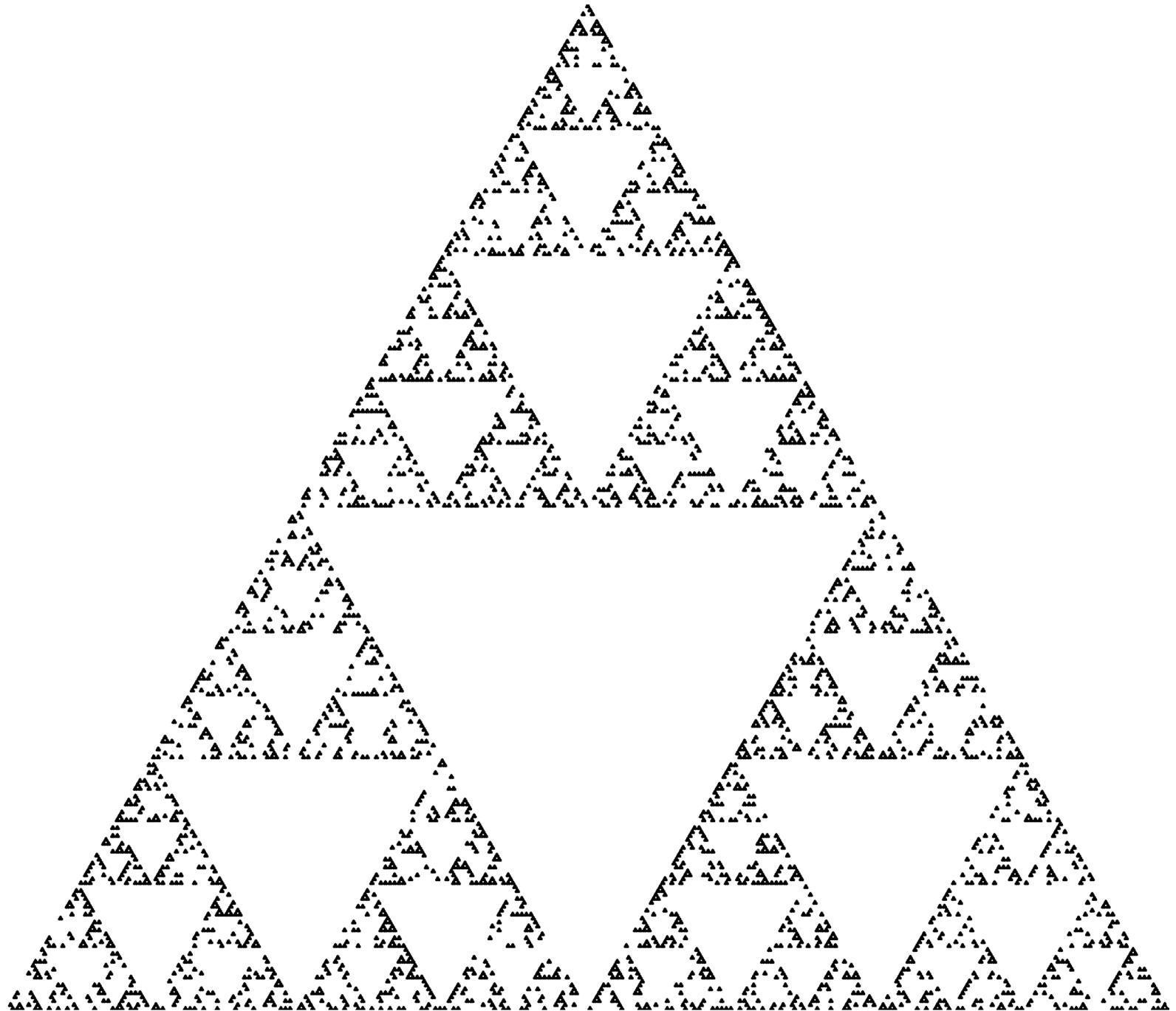
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

APRIL 2024

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MARCH 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
25	26	27	28	29	1	2
					First Day of Women's History Month	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
Daylight Saving Time starts						
17	18	19	20	21	22	23
St. Patrick's Day						
24	25	26	27	28	29	30
31						
Easter Sunday						



MARCH 2024

S	M	T	W	T	F	S
				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						

MAY 2024

S	M	T	W	T	F	S
			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	

APRIL 2024

SUNDAY

MONDAY

TUESDAY

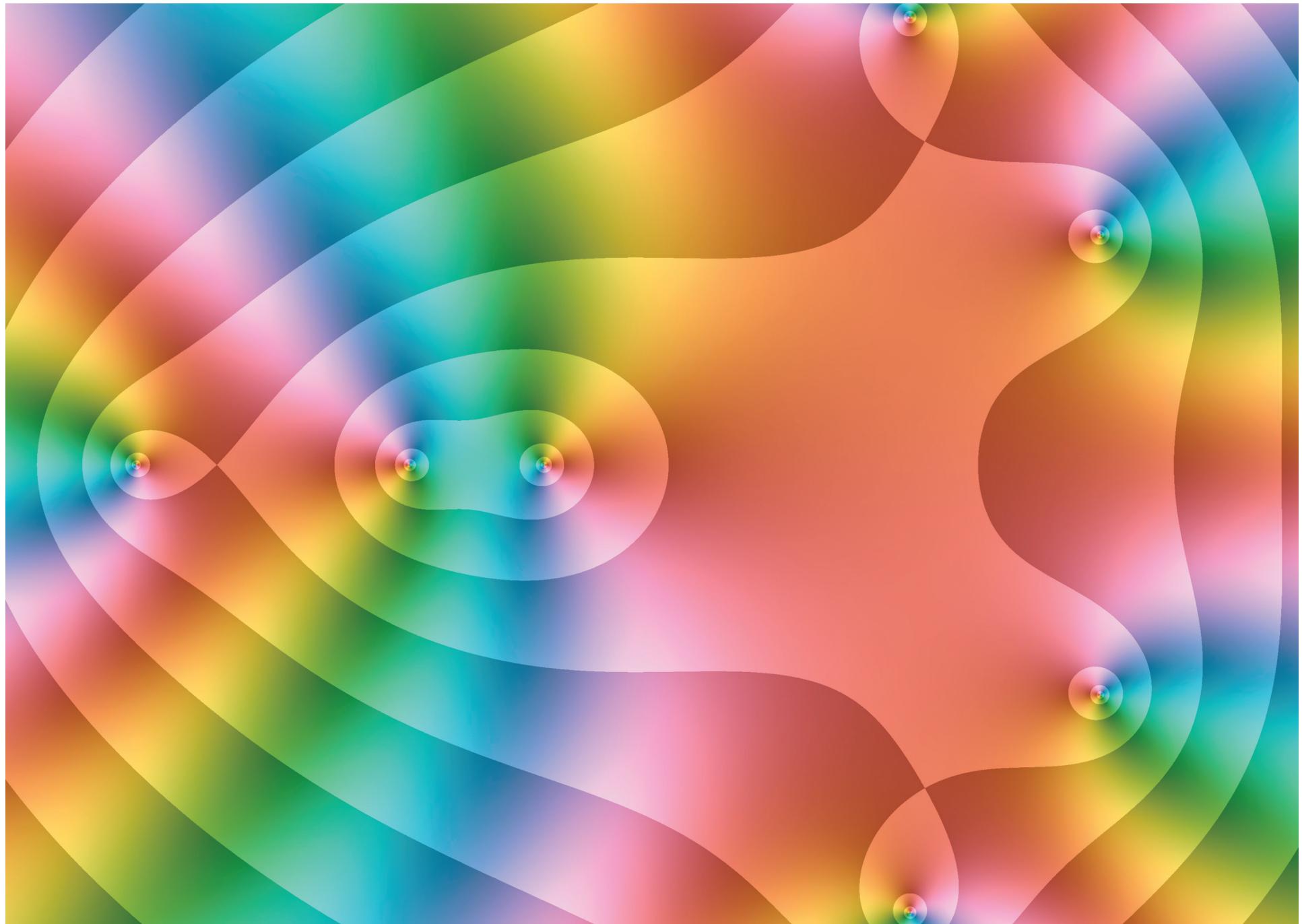
WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

31	1 Easter Monday	2	3	4	5	6
7	8	9	10	11	12	13
14	15 Tax Day	16	17	18	19	20
21	22 Earth Day	23	24	25	26	27
28	29	30	1	2	3	4

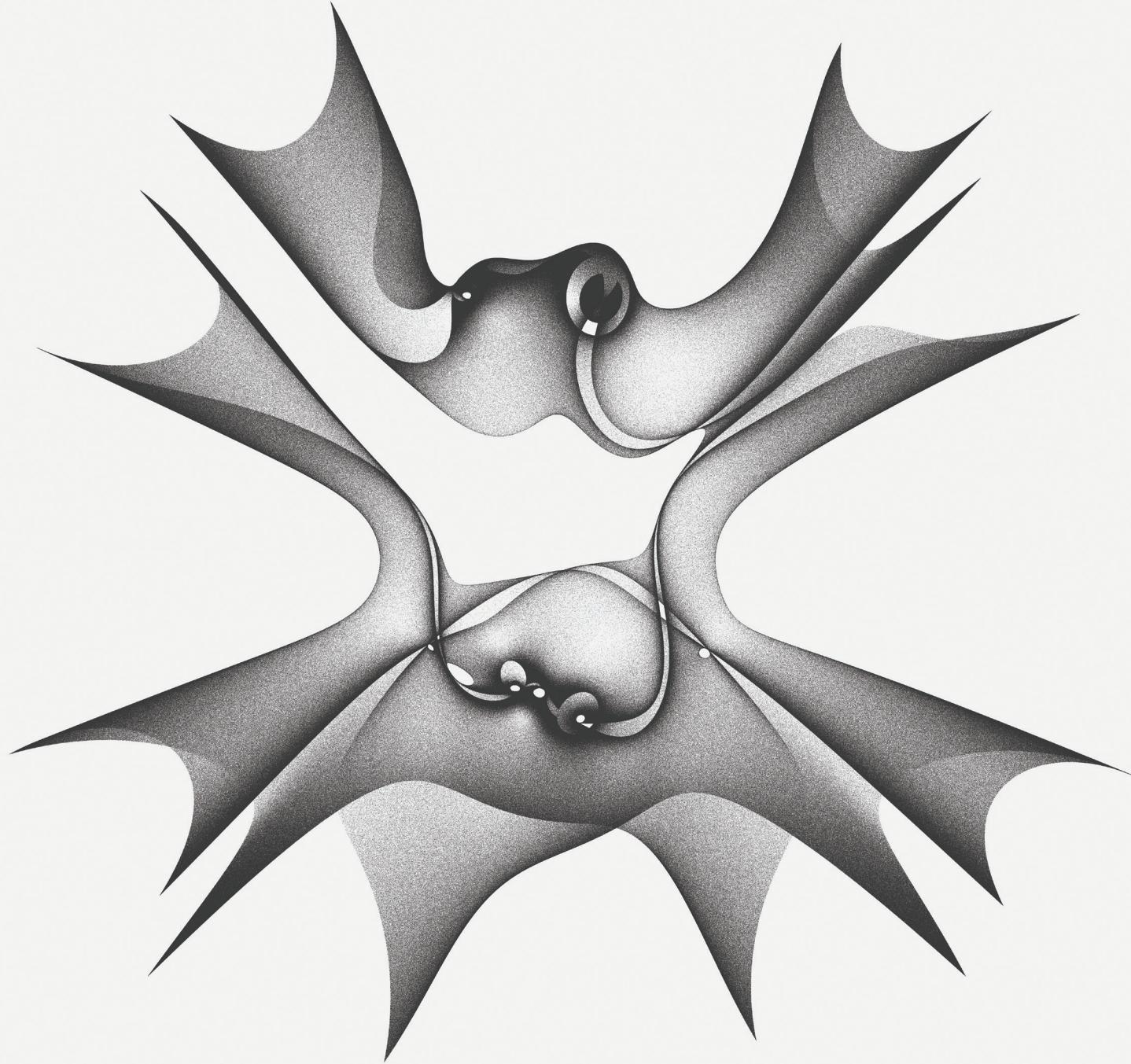


APRIL 2024						
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY 2024

JUNE 2024						
S	M	T	W	T	F	S
						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

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	1 First Day of Asian Pacific American Heritage Month	2	3	4
5 Cinco de Mayo	6	7	8	9	10	11
12 Mother's Day	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1 Memorial Day



MAY 2024

S	M	T	W	T	F	S
	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	

JULY 2024

S	M	T	W	T	F	S
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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			

JUNE 2024

SUNDAY

MONDAY

TUESDAY

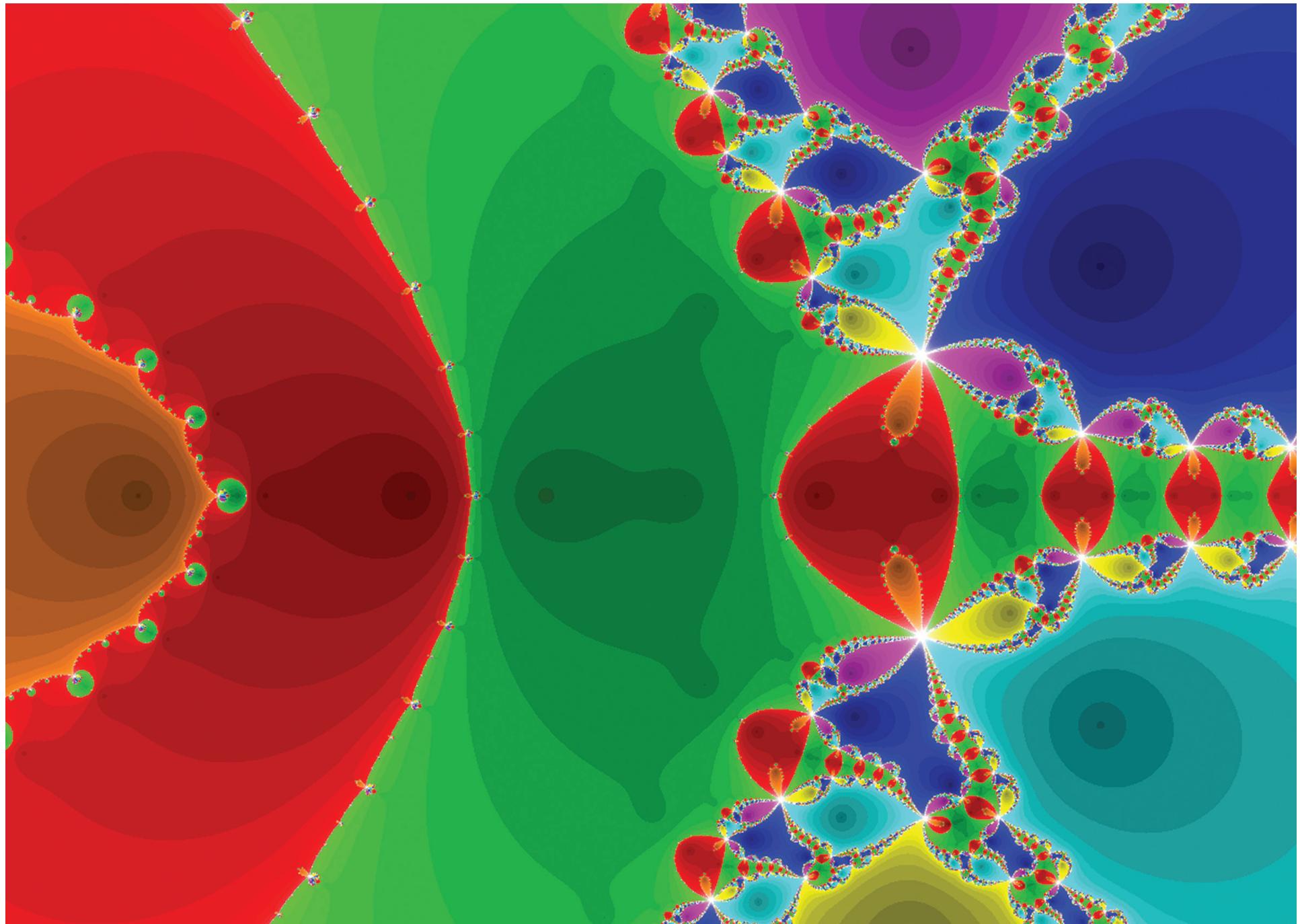
WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
Father's Day		Juneteenth				
23	24	25	26	27	28	29
30						



JUNE 2024

S	M	T	W	T	F	S
				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						

AUGUST 2024

S	M	T	W	T	F	S
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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

JULY 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	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	1	2	3



JULY 2024

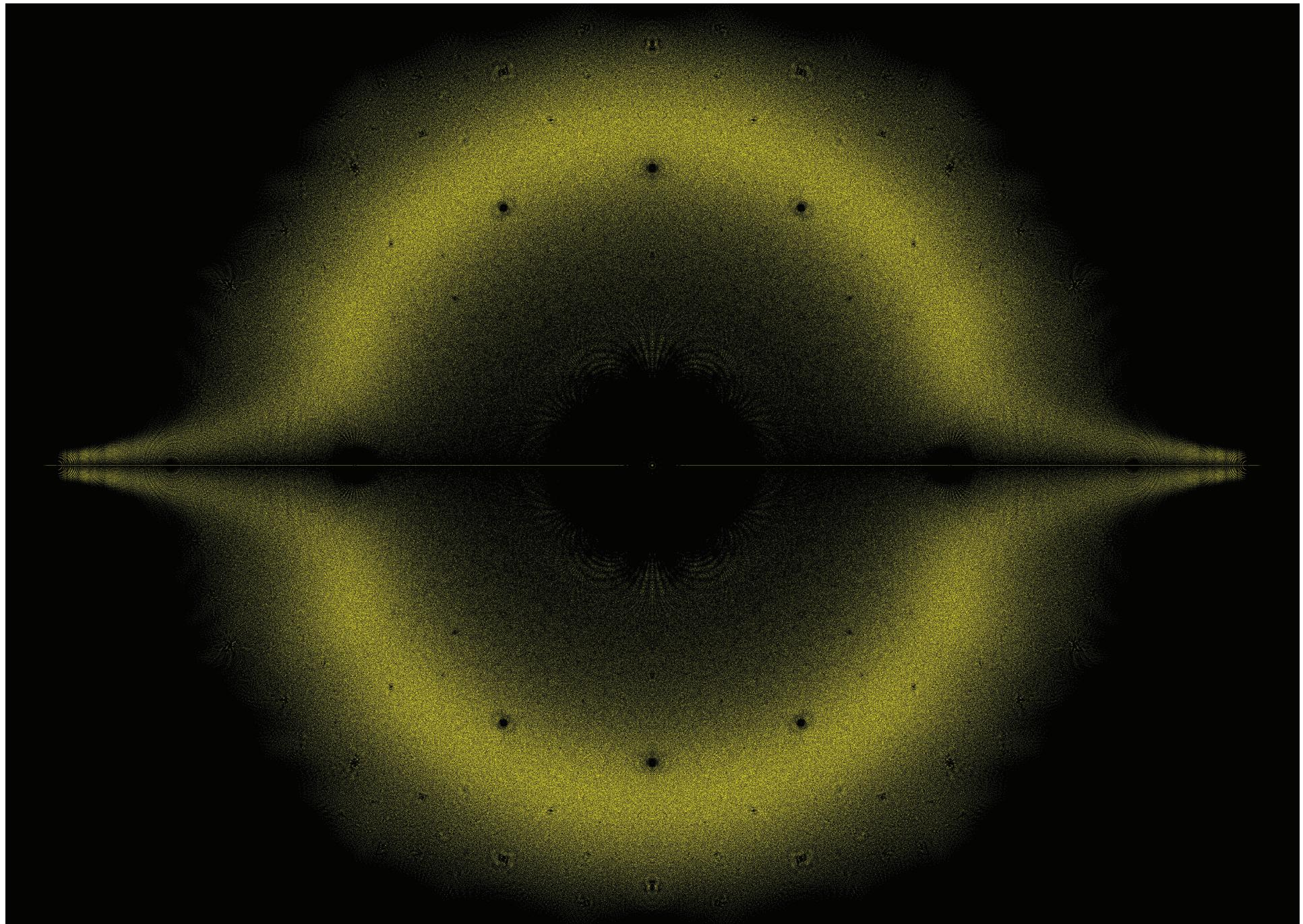
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21	22	23	24	25	26	27
28	29	30	31			

SEPTEMBER 2024

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

AUGUST 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	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



AUGUST 2024

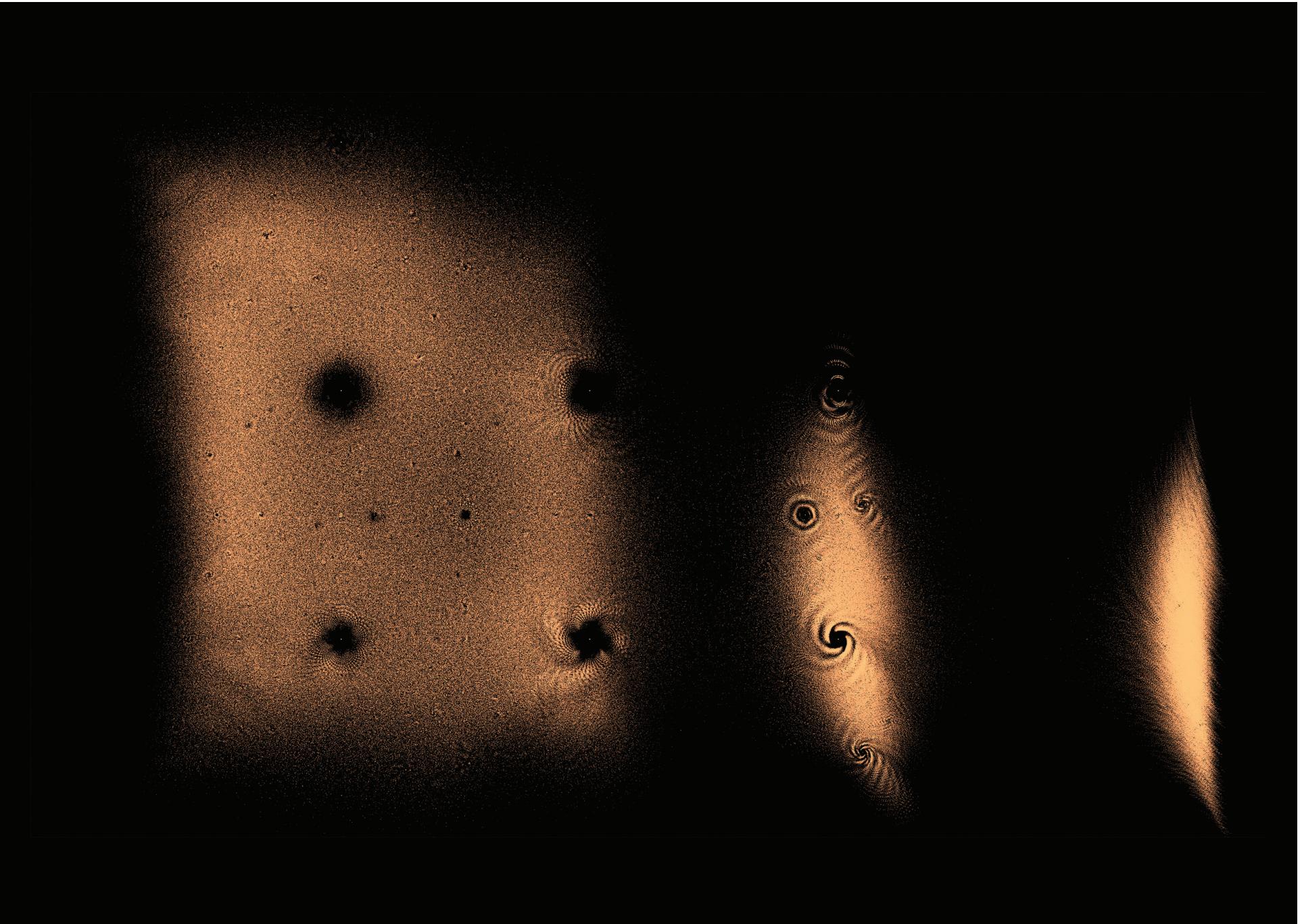
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18	19	20	21	22	23	24
25	26	27	28	29	30	31

OCTOBER 2024

S	M	T	W	T	F	S
		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		

SEPTEMBER 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Labor Day	3	4	5	6	7
8	9	10	11	12	13	14
15 First Day of Hispanic Heritage Month	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5



SEPTEMBER 2024

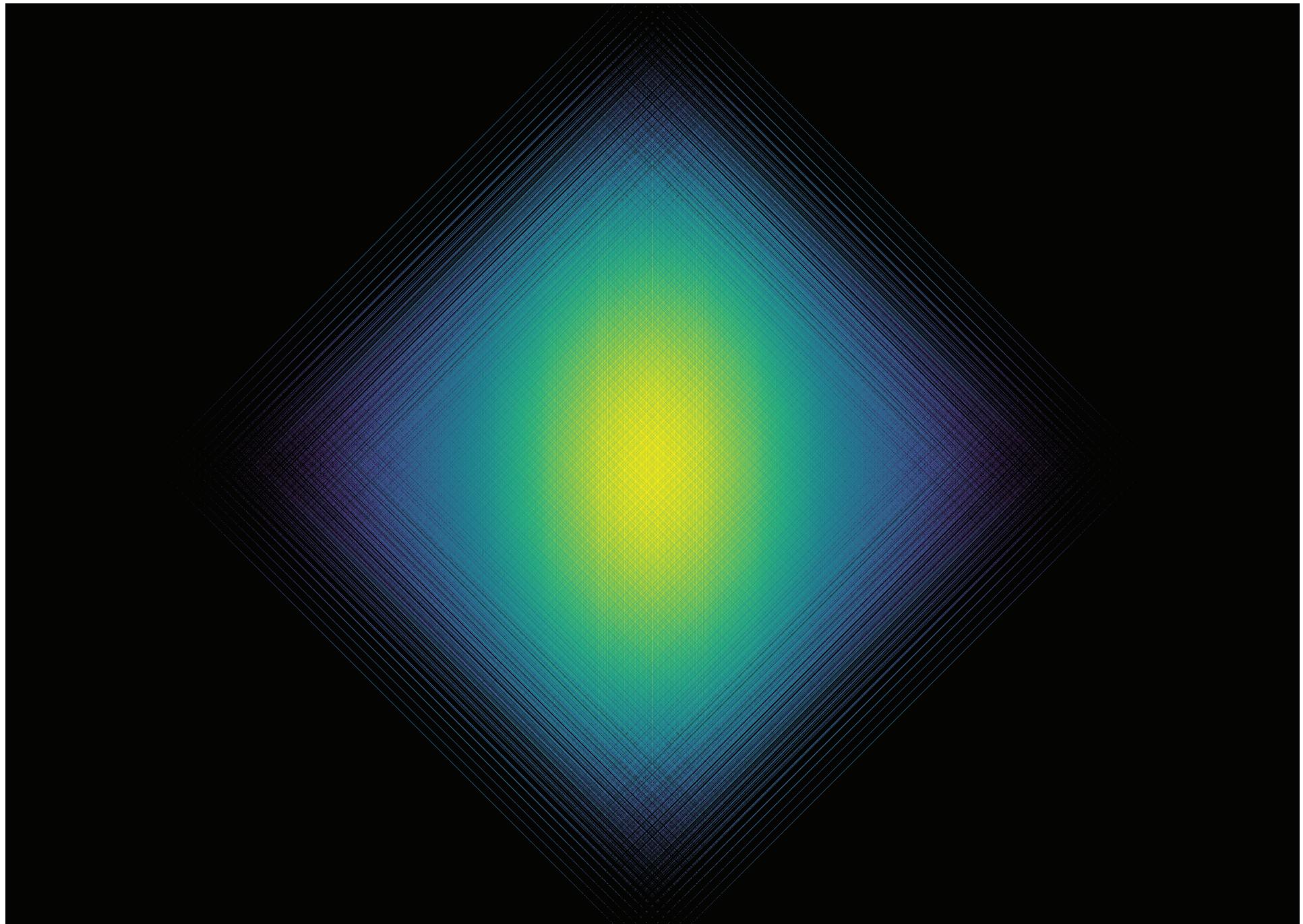
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

NOVEMBER 2024

S	M	T	W	T	F	S
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
	Indigenous Peoples' Day					
20	21	22	23	24	25	26
27	28	29	30	31	1	2
				Halloween		



OCTOBER 2024

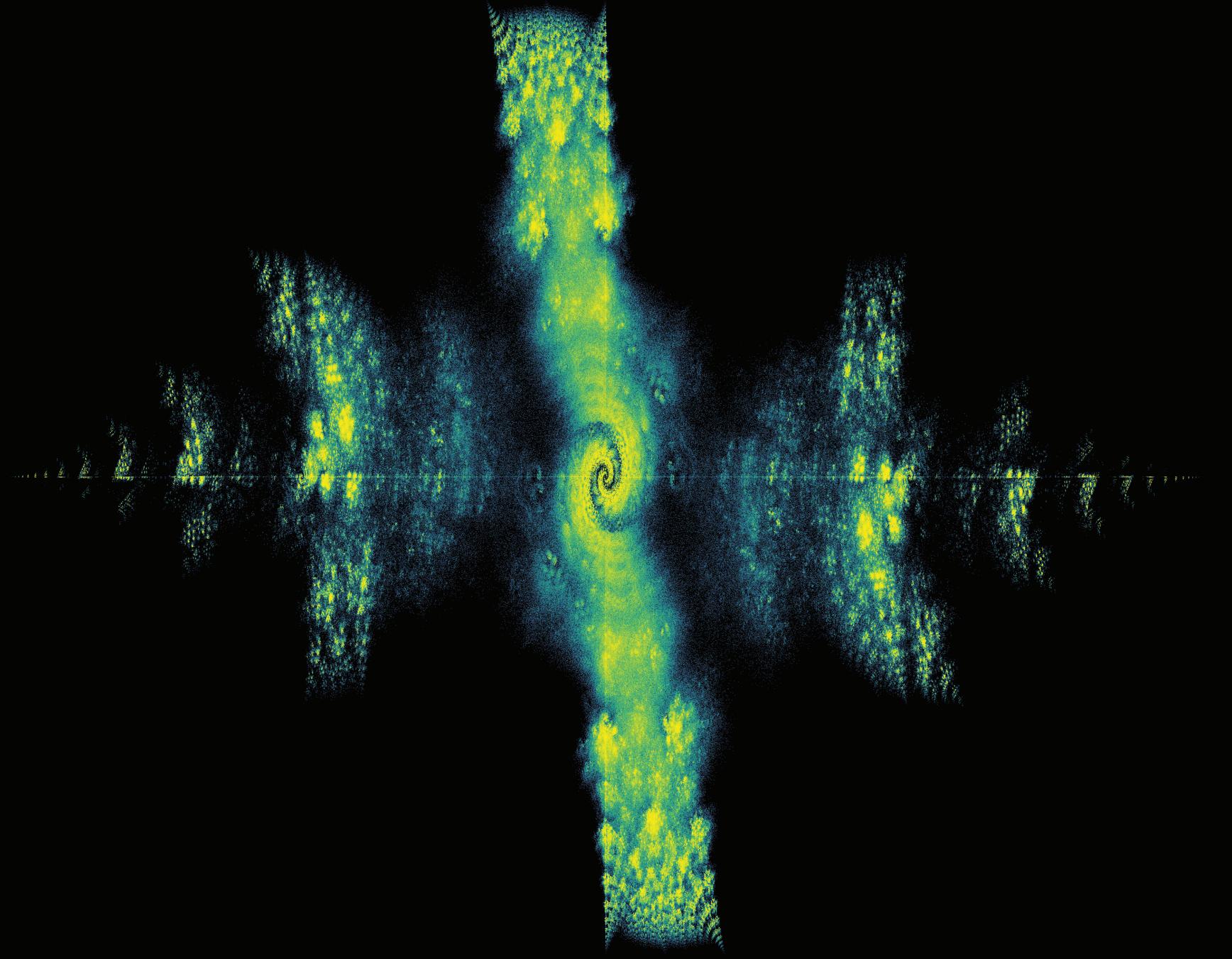
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20	21	22	23	24	25	26
27	28	29	30	31		

DECEMBER 2024

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28	29	30	31	1	2
					First Day of American Indian Heritage Month	
3	4	5	6	7	8	9
Daylight Saving Time ends		Election Day				
10	11	12	13	14	15	16
Veterans Day						
17	18	19	20	21	22	23
24	25	26	27	28	29	30
				Thanksgiving Day	Native American Heritage Day Black Friday	



NOVEMBER 2024

S	M	T	W	T	F	S
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3	4	5	6	7	8	9
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17	18	19	20	21	22	23
24	25	26	27	28	29	30

JANUARY 2025

S	M	T	W	T	F	S
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

DECEMBER 2024

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
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
		Christmas Eve	Christmas Day			
29	30	31	1	2	3	4
		New Year's Eve				

This book uses Python to teach mathematics not found in the standard curriculum, so students learn a popular programming language as well as some interesting mathematics. Videos, images, programs, programming activities, pencil-and-paper activities, and associated Jupyter Notebooks accompany the text, and readers are encouraged to interact with and extend the material as well as contribute their own notebooks. Indeed, some of the material was created/discovered/invented/published first by the authors' students.

Useful pedagogical features include:

- using an active learning approach with topics not typically found in a standard math curriculum
- introducing concepts using programming, not proof, with the goal of preparing readers for the need for proof
- accompanying all activities with a full discussion

Computational Discovery on Jupyter is for upper-level high school and lower-level college students. Graduate students in mathematics will also find it of interest.



Neil J. Calkin is a professor in the School of Mathematical and Statistical Sciences at Clemson University. He cofounded the *Electronic Journal of Combinatorics* with Herbert S. Wilf in 1994.



Eunice Y. S. Chan is an assistant professor in the School of Medicine at The Chinese University of Hong Kong Shenzhen, China. She was a postdoctoral fellow at the Centre for Medical Evidence, Decision Integrity and Clinical Impact (MEDICI Centre), Department of Anesthesia and Perioperative Medicine, Schulich School of Medicine and Dentistry at Western University in London, Ontario.



Robert M. Corless is Emeritus Distinguished University Professor at Western University, a member of the Rotman Institute of Philosophy, former scientific director of The Ontario Research Center for Computer Algebra, and an adjunct professor at the Cheriton School of Computer Science, the University of Waterloo. He is the editor-in-chief of *Maple Transactions*.

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Robert M. Corless**

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