Resonances in 2D CA of Class IV

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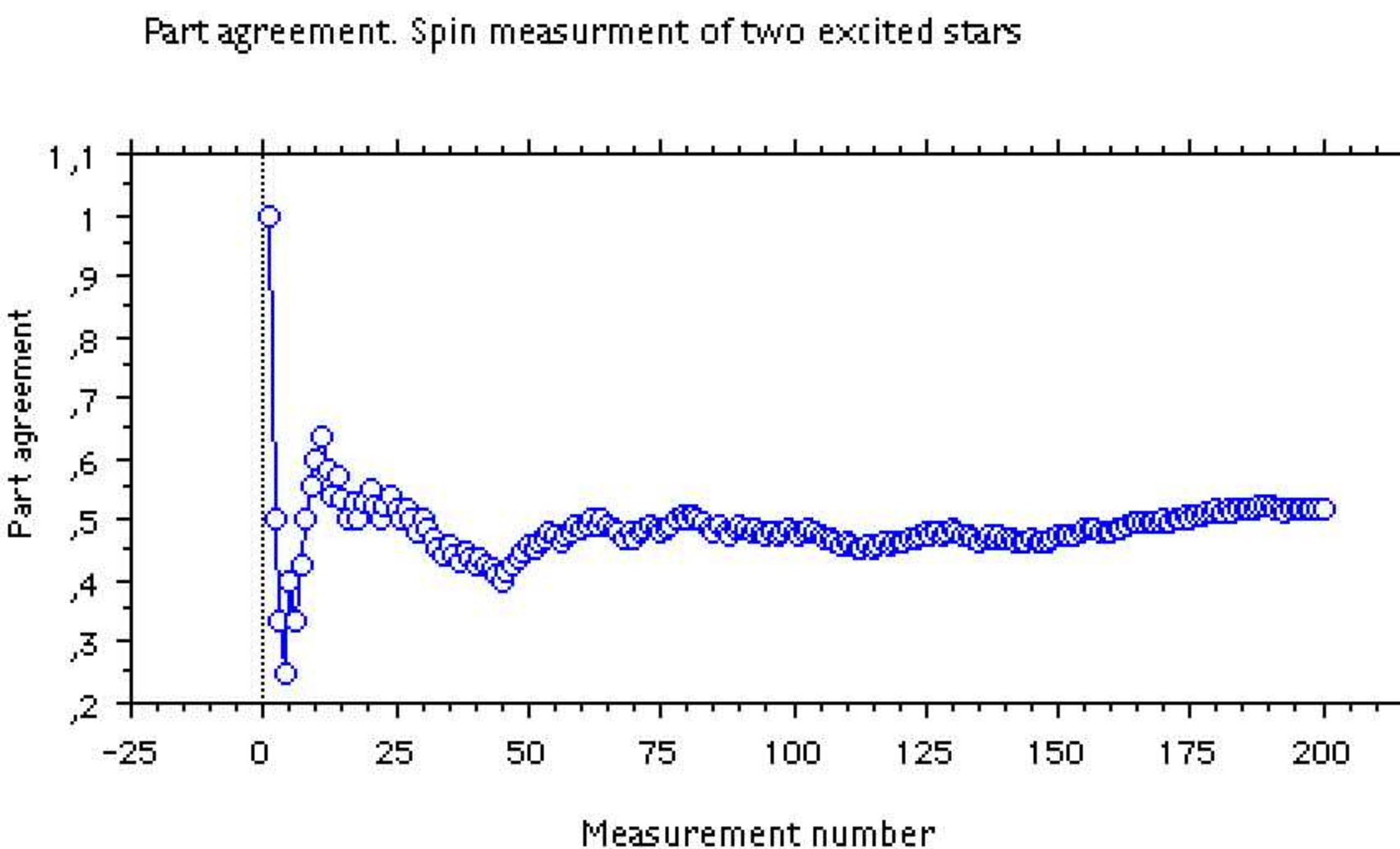
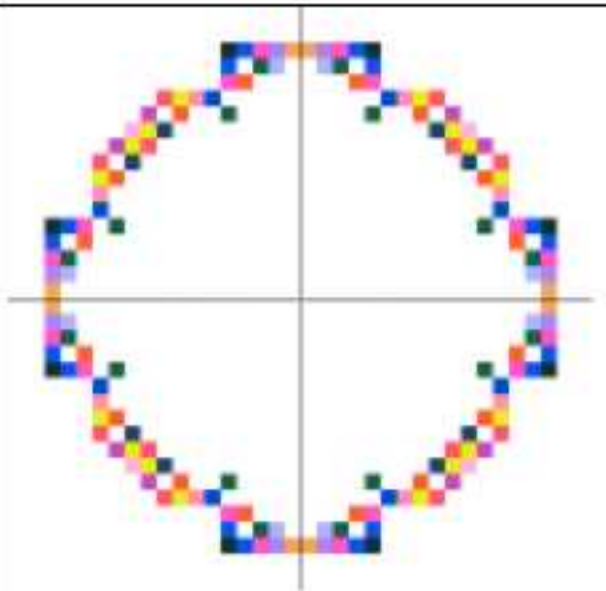
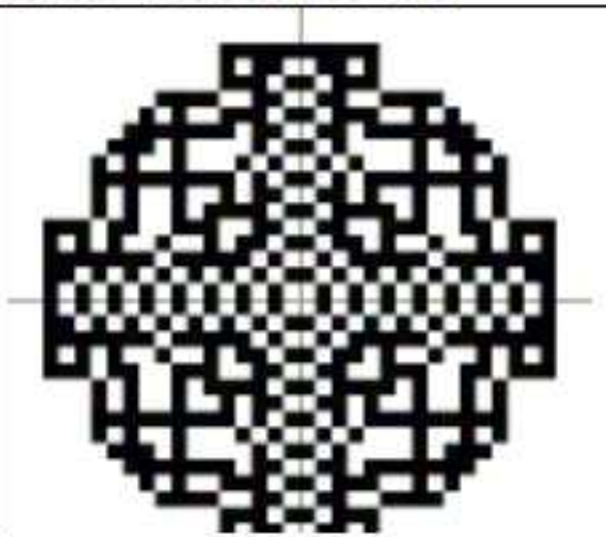
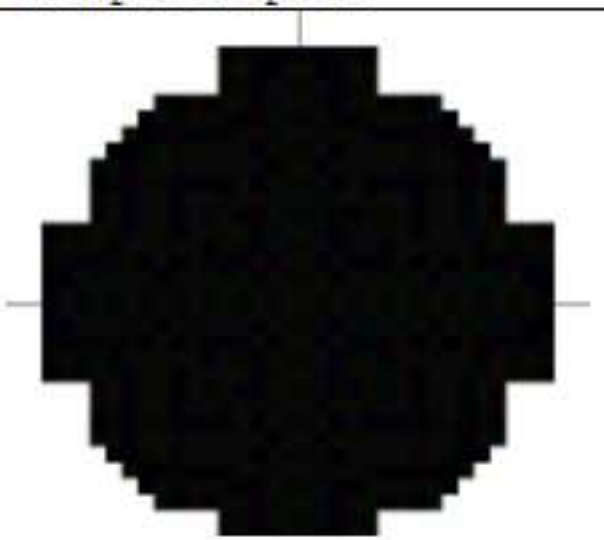
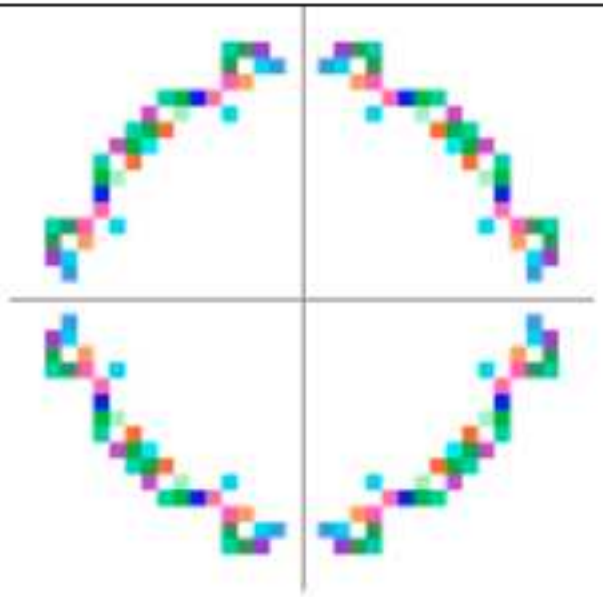
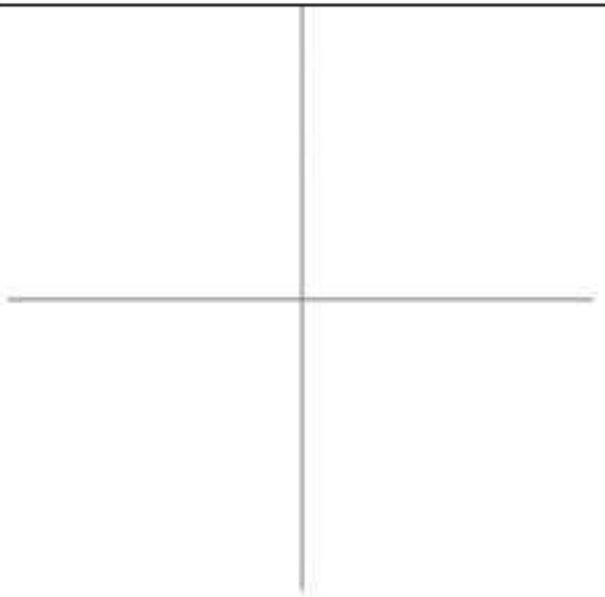
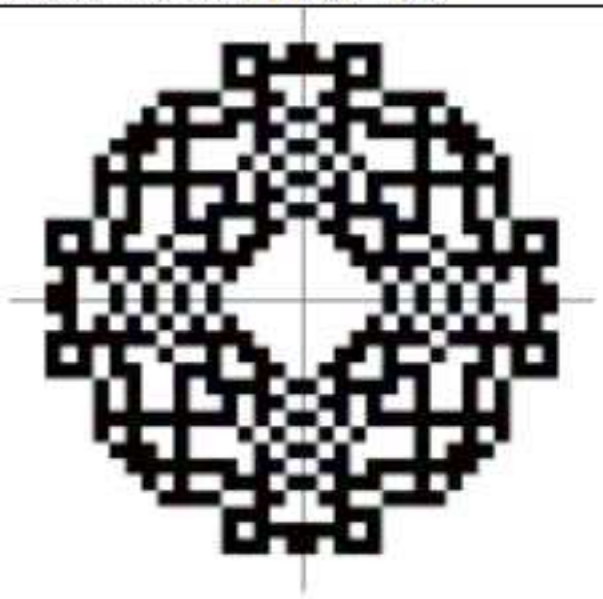
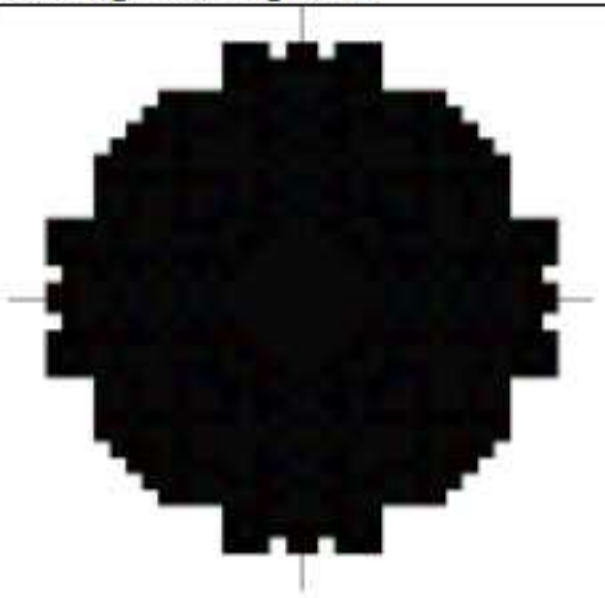
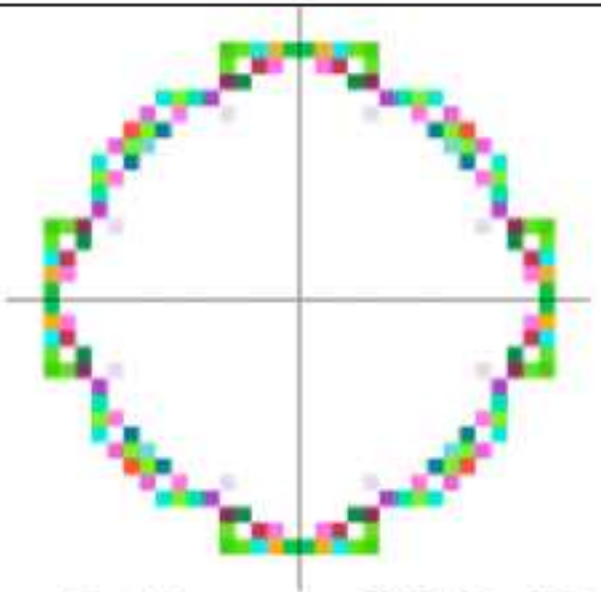
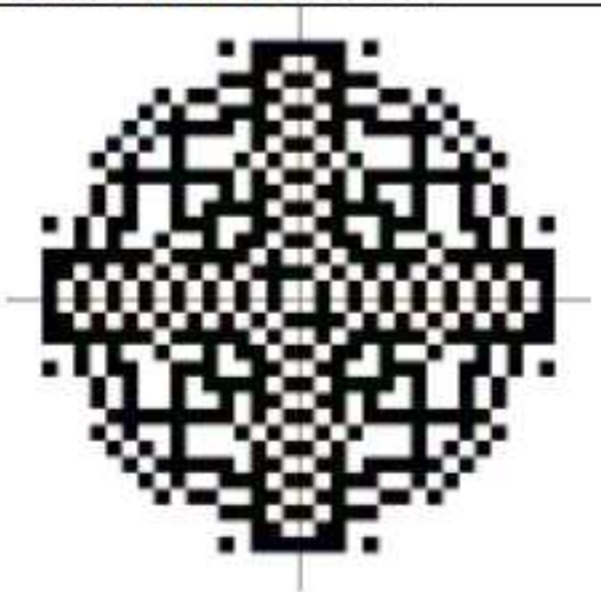
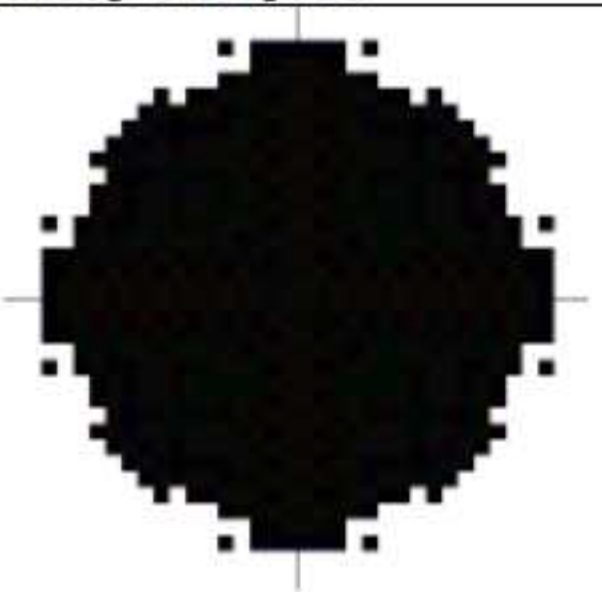
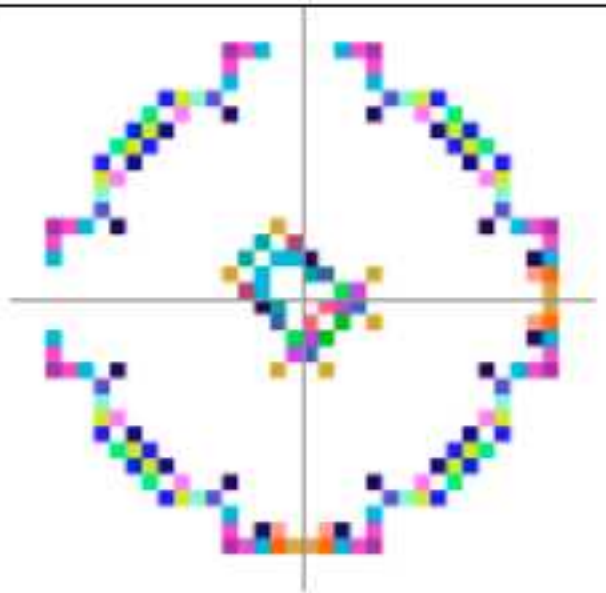
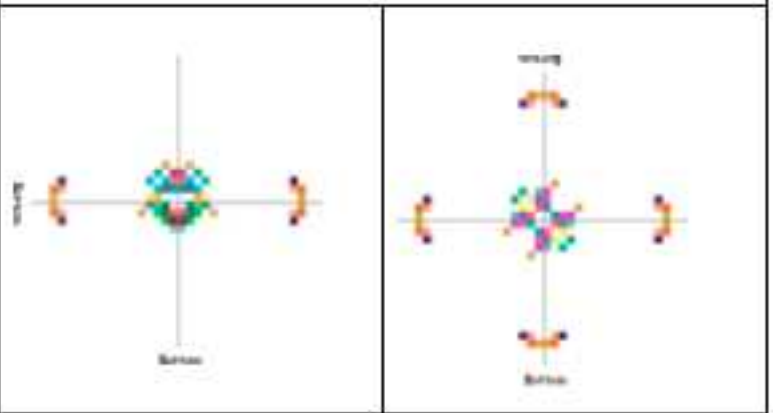
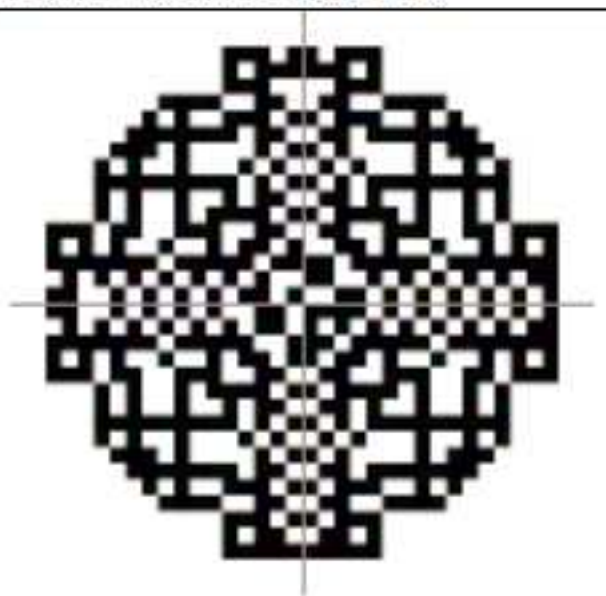
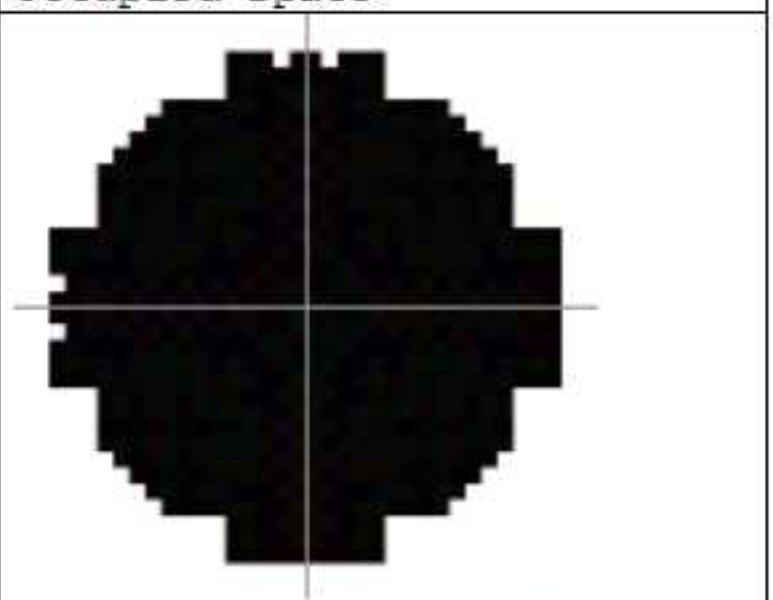

Part agreement. Spin measurment of two excited stars
Part agreement
1,1
1
,9
,8
,7
,6
,5
,4
,3
,2
-25
0
25
50
75
100
125
150
175
200
Measurement number

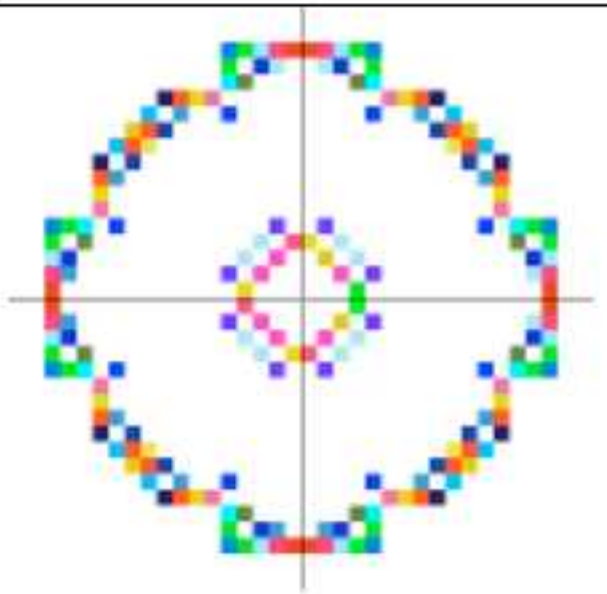
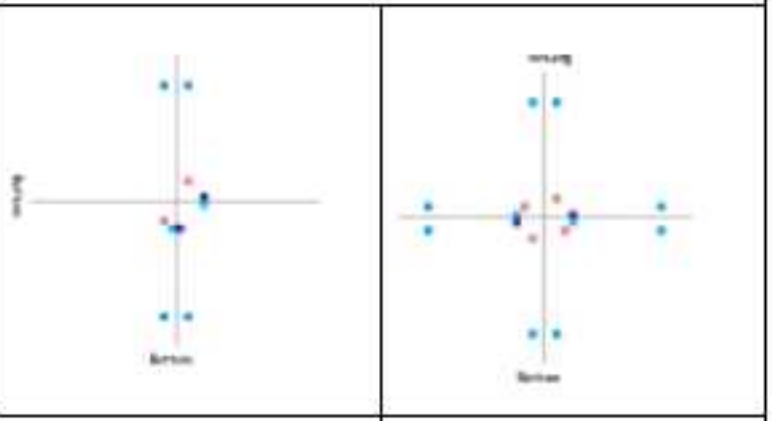
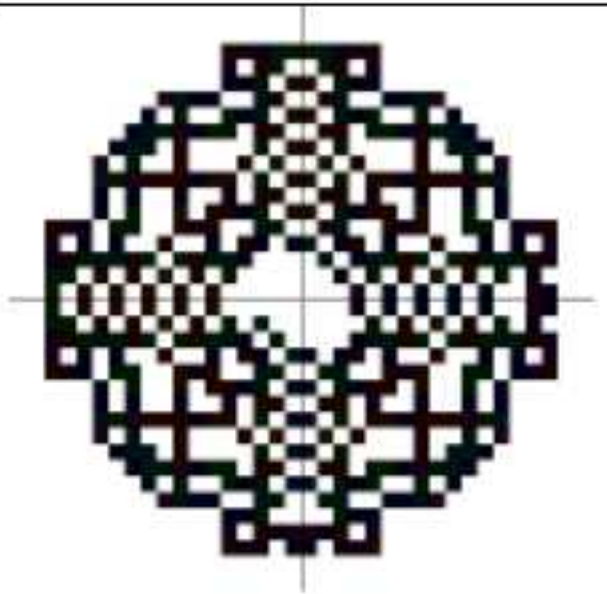
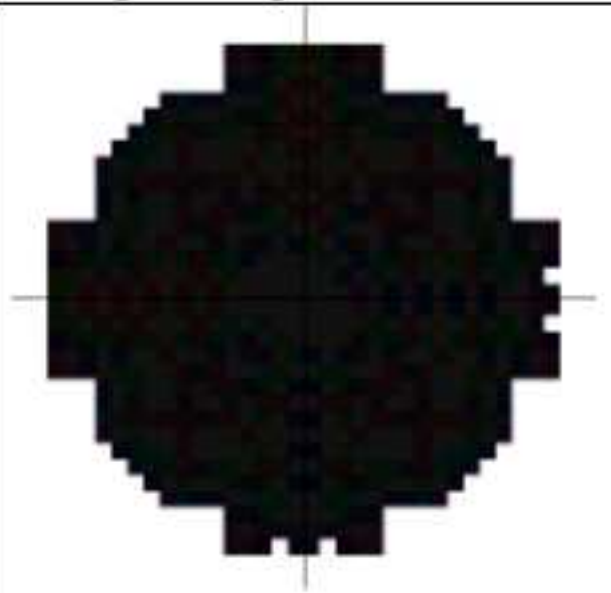
P425 Classes of resonances

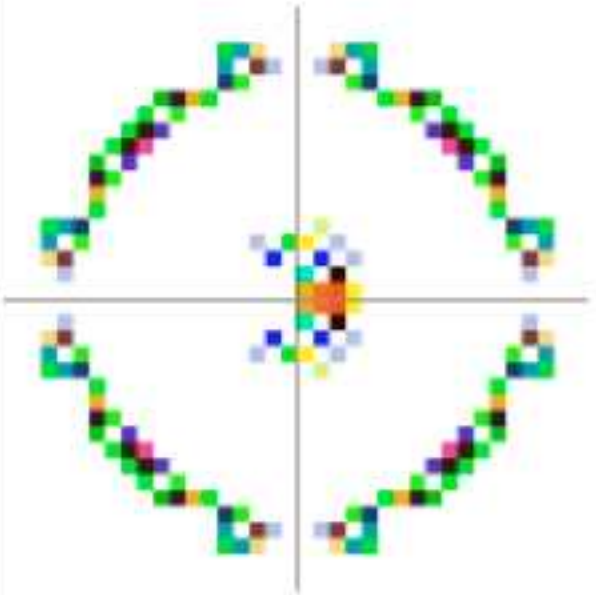
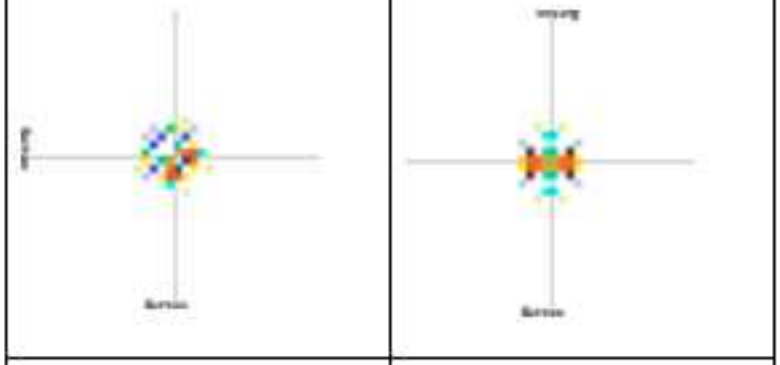
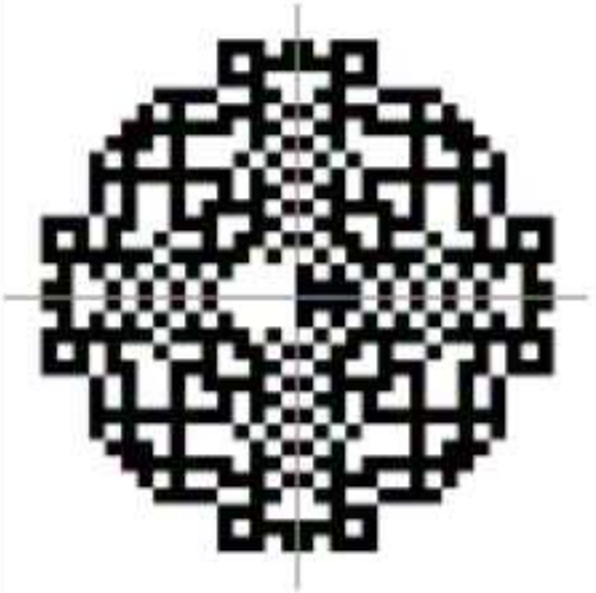
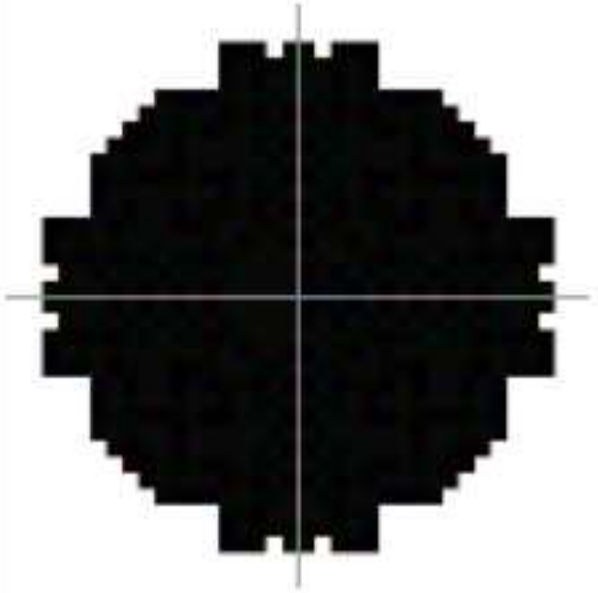
Class 1	Energy distribution	Energy assymetry	
93.55	 Class I sum of energy 3368/36 = 93.55		
	Mass distribution	Occupied space	
464			

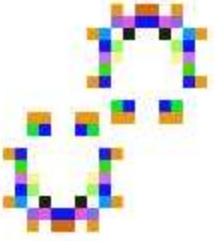
Class 2	Energy distribution	Energy assymetry
92.44	 Class II Sum energy 3328 /6 = 92.44	 Class II Charge = 0
	Mass distribution	Occupied space
436	 Class II Mass = 436	 Class II occupied space = 756
	Mass assymetry	
		

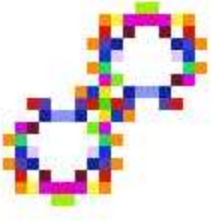
Class 3	Energy distribution	Energy assymetry = 0
92.44	 Class III sum energy = 3328 / 36 = 92.44	
	Mass distribution	Occupied space
430	 Class III Mass = 430	 Class III Occupied space = 732
	Mass assymetry 90 + Mx = 0	Mass assymetry 90, 180, Mx, My

Class 4a	Energy distribution	Energy assymetry
81.44	 Class IVa Sum energy 2932/36 = 81.44	
	Mass distribution	Occupied space
464		 Class IVa Occupied space = 792

Class 5a	Energy distribution	Energy assymetry
95.77 90 5.77	 Class 5a Energy 95.77 Coat 3240 / 36 = 90 Core 208 / 36 = 5.77	
	Mass distribution	Occupied space
450	 Class Va Mass = 450	 Class Va Occupied space 744

Class 6	Energy distribution	Energy assymetry
90.88 78.33 12.55		
	Mass distribution	Occupied space
456		





Summary:

Resonances in 2D CA are stable periodic structures that show up for certain seeds and certain universe sizes.

They can sometimes be combined into merged structures that sometimes preserve the properties of the initial seeds.

We have seen the following emergent features in some simple 2D CA rules:

- Excitation
- Deexcitation
- Absorbtion
- Reflection
- Wavelengths
- Superposition
- “Spontaneous emission”
- Resonances
- Quantum-like effects
- “Spontaneous decay”
- Strings

And that is not bad for a simple little deterministic rule

Thanks for listening