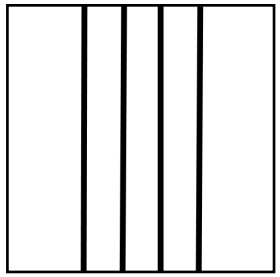
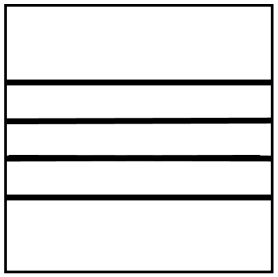
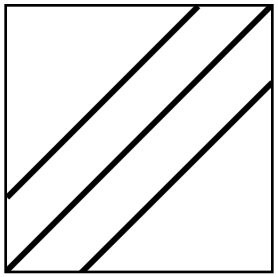
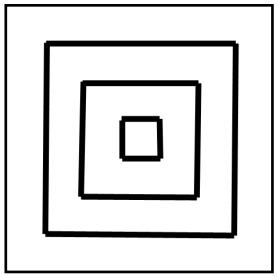
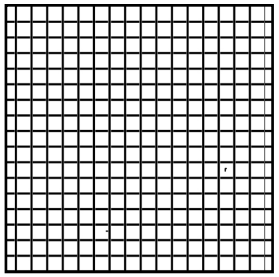
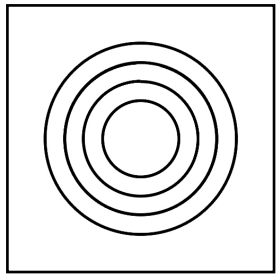
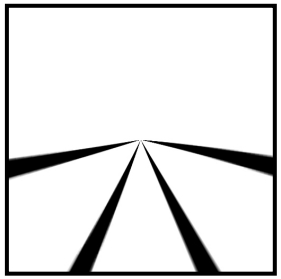
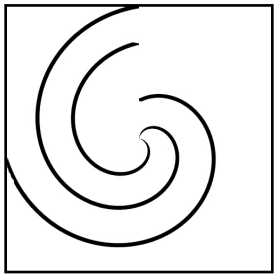
III. filtre *COORDONNEES POLAIRES*.

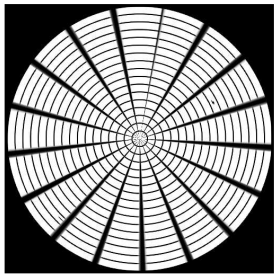
Cette transformation présente des effets si surprenants qu'elle mérite une attention particulière. Elle transforme une droite horizontale en un cercle et des droites parallèles verticales en des droites sécantes au centre. En transformant une rosace, on obtient une frise et vice-versa.

- Motif initial.

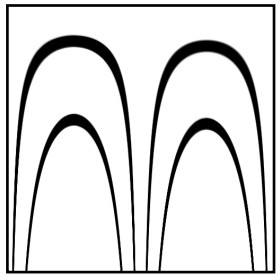
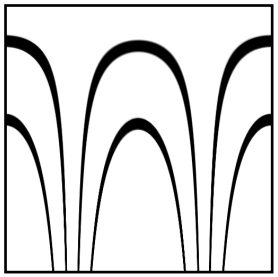
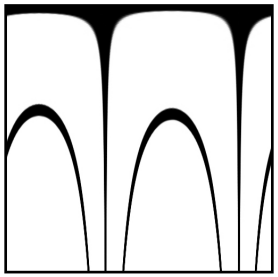
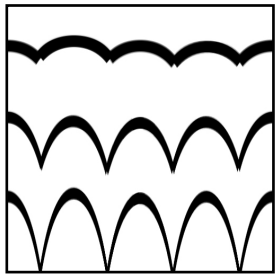
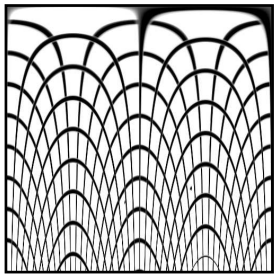






- Filtre COORDONNEES POLAIRES (rectangulaire en polaire).

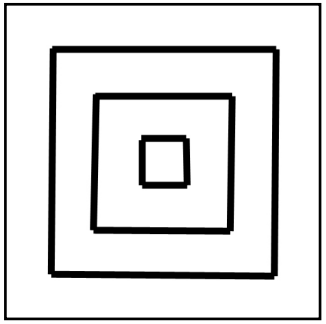




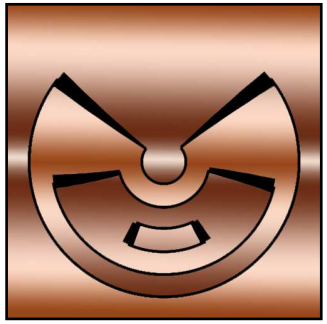
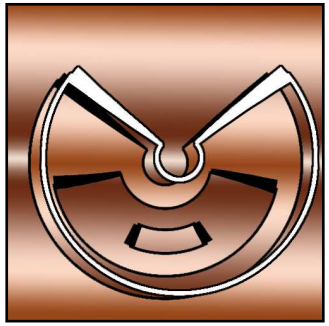
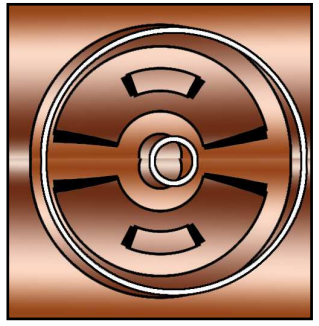
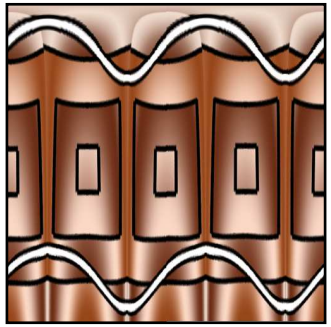


- Filtre COORDONNEES POLAIRES (polaire en rectangle)

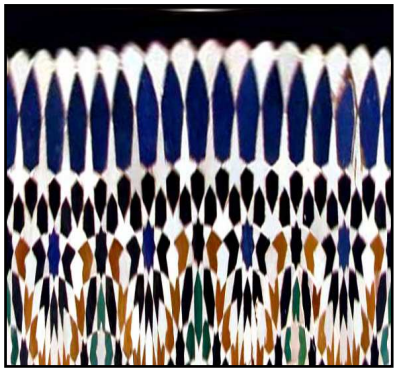
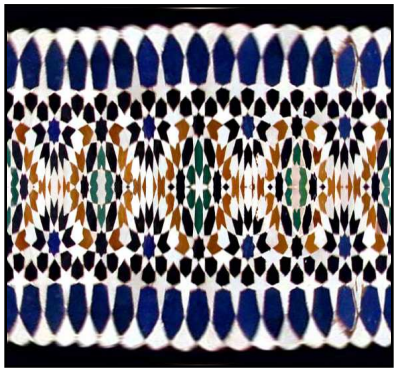
- Exemple de construction simple :



Original . Rectangulaire en polaire . Dégradés. Sélection du trait noir, déplacement de cette sélection, couper, resélectionner, contour de cette sélection. Sélectionner une demi-figure, copier, coller, symétrie d'axe vertical, déplacer, aplatir. Polaire en rectangulaire pour faire apparaître la frise.

- Autres exemples : zelliges marocaines.

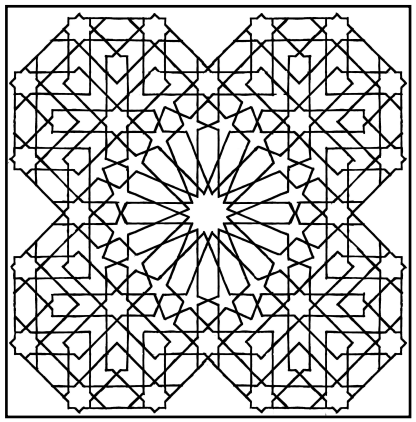
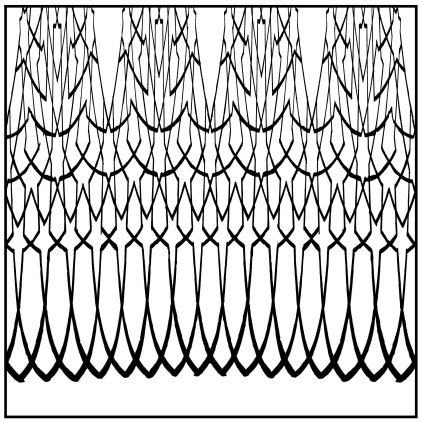
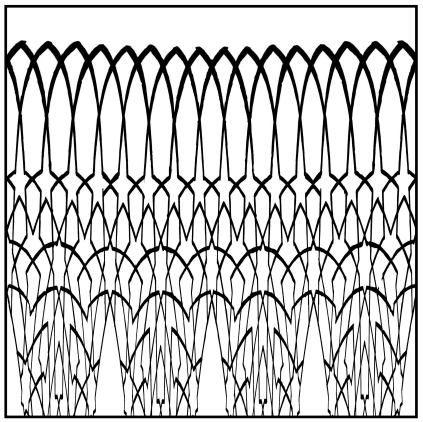
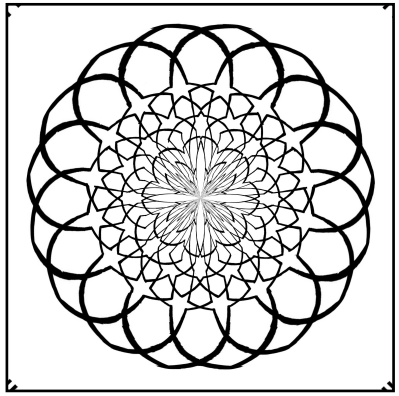



Transformation de la rosace (feuille de trèfle) en frise en utilisant le filtre COORDONNEES POLAIRES (polaire en rectangulaire).

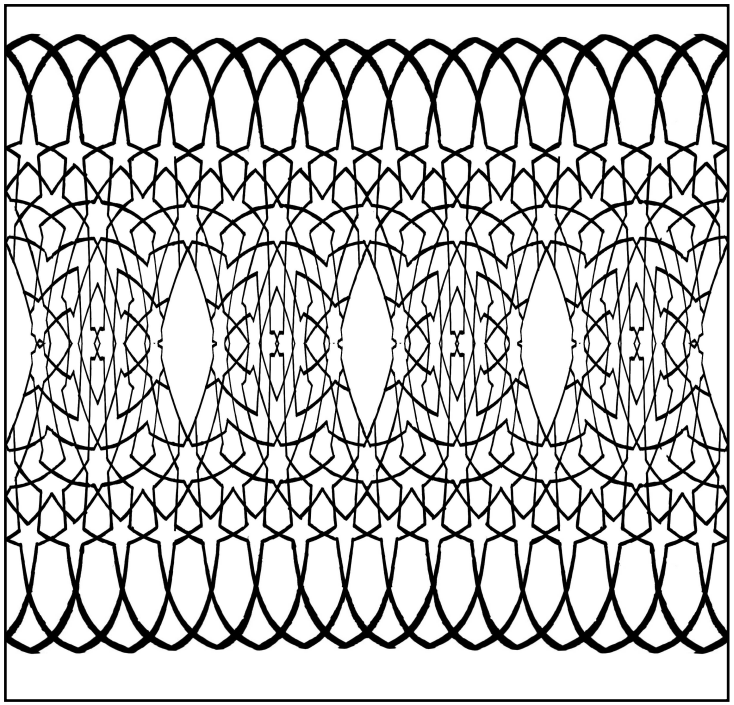
Sélection totale, transformation manuelle de cette sélection, copier, coller , symétrie d'axe vertical, déplacement et ajustements.

Transformation de cette double frise en rosace : filtre COORDONNEES POLAIRES (rectangulaire en polaire).

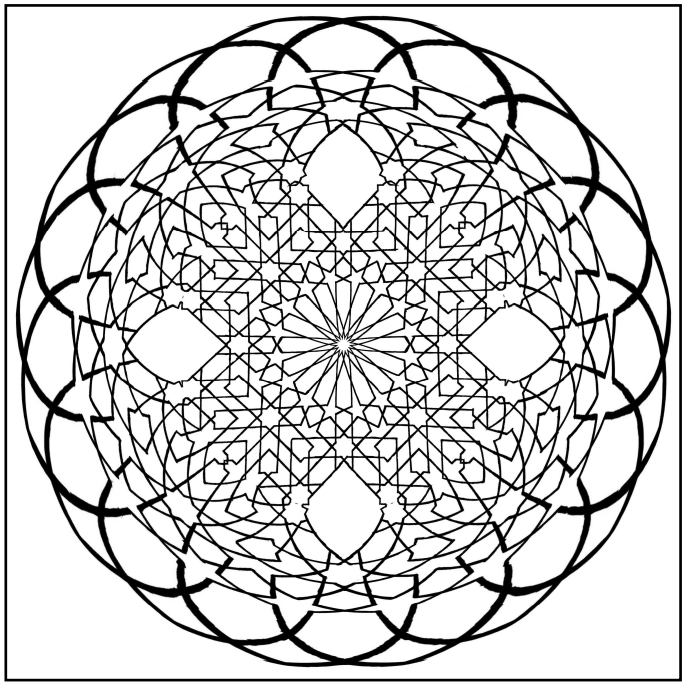
- Reprise du même exemle déssiné :

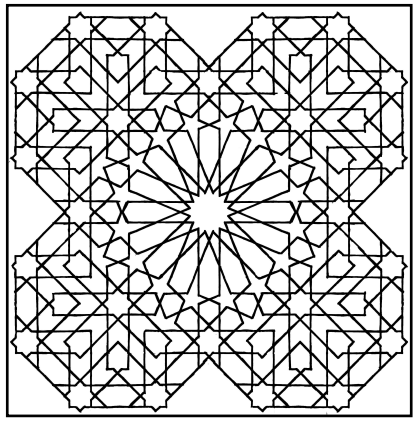





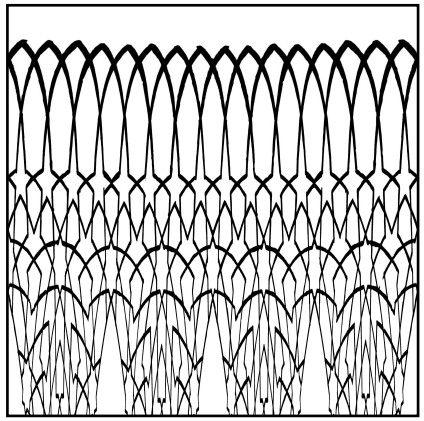
Modèle dessiné de la feuille de trèfle précédent ; filtre COORDONNEES POLAIRE (polaire en rectangle) ; sélection totale et symétrie verticale ; filtre COORDONNEES POLAIRE (rectangle en polaire).

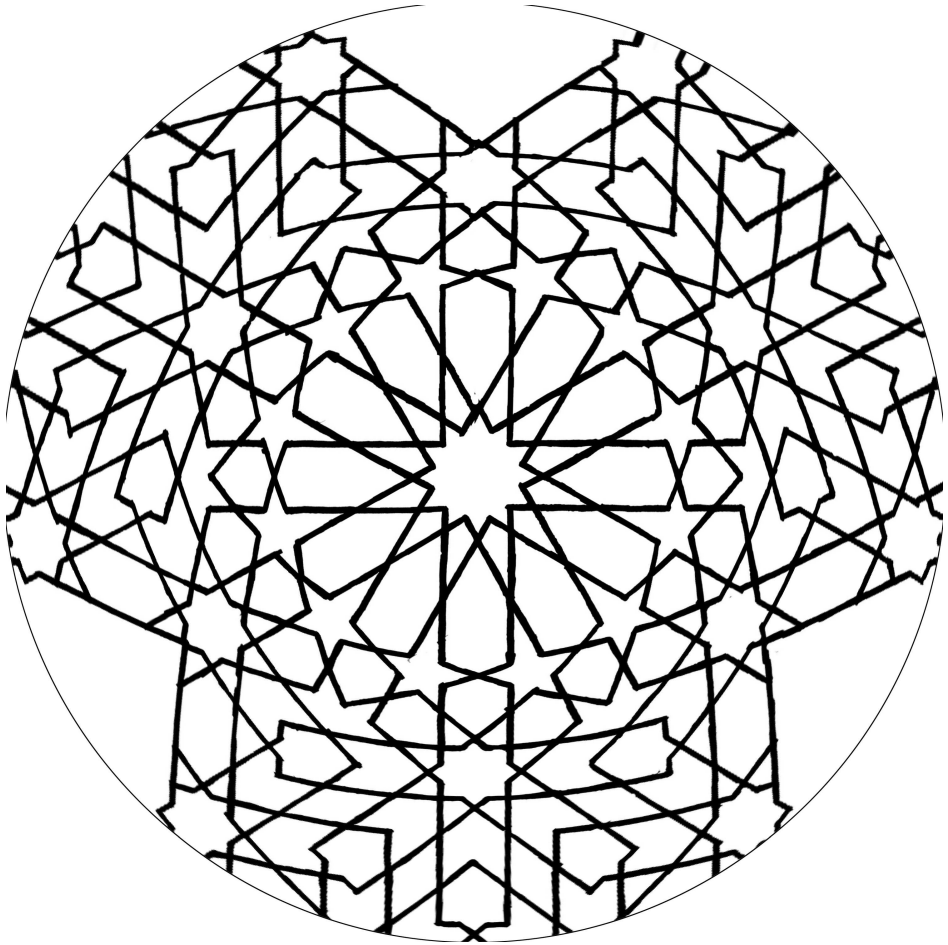


Doublage vertical de la frise précédente ; filtre COORDONNEES POLAIRE (rectangle en polaire).



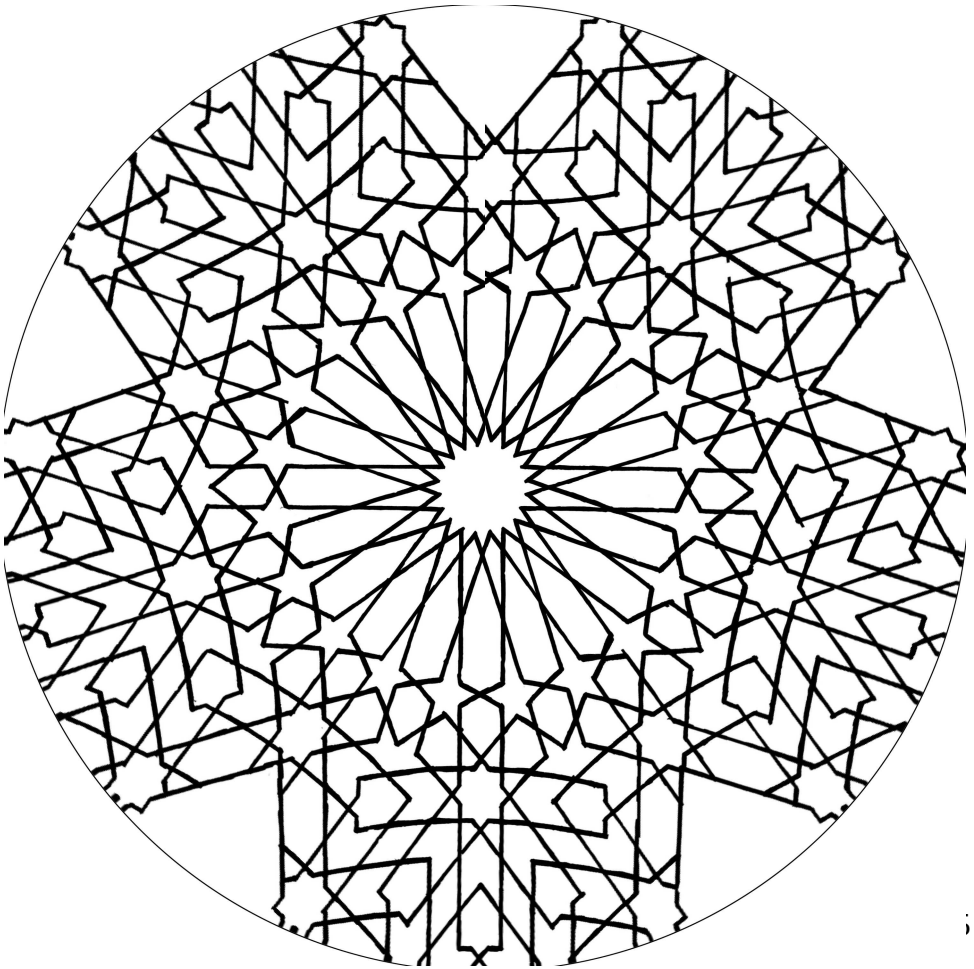




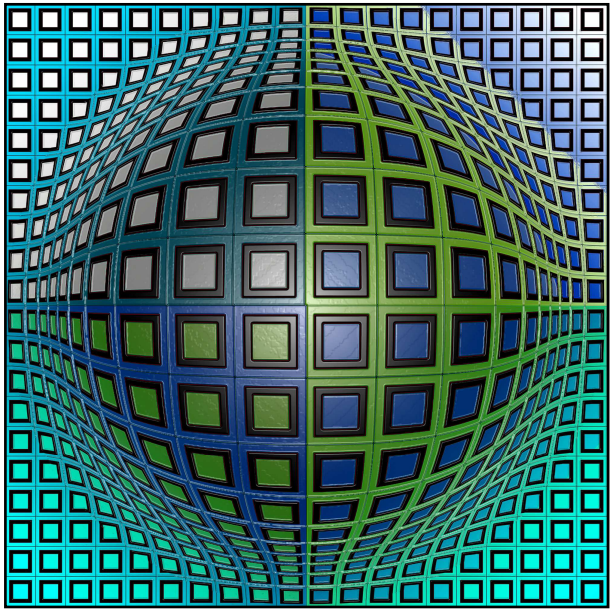


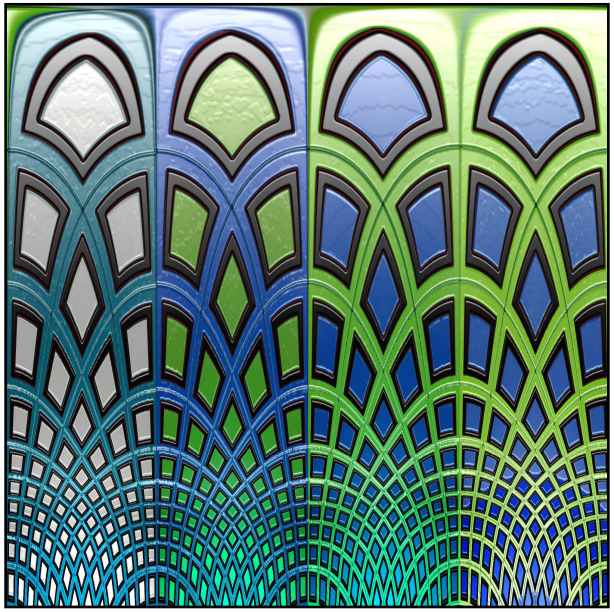
Pour changer le nombre de branches d'une étoile : l'étoile d'origine dans le cas considéré possède 16 branches .

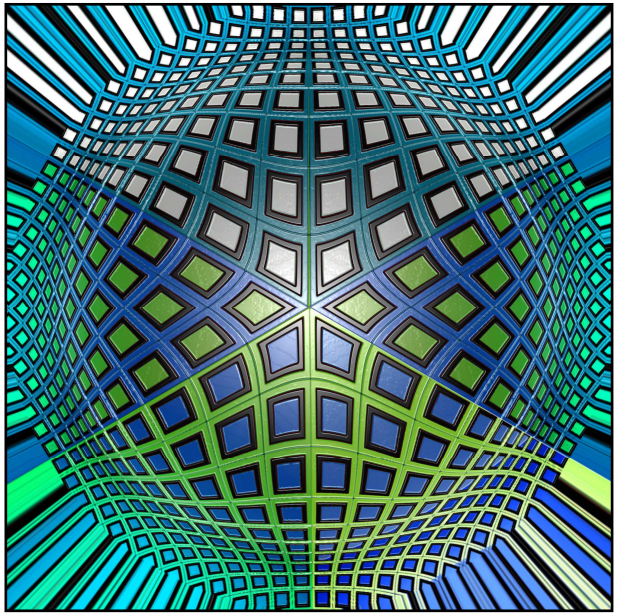
Filtre COORDONEES POLAIRE (polaire en rectangle) ; remarquer les quatre parties symétrique du résultat ; supprimer une partie donnera une étoile à 12 branches. Pour obtenir l'étoile à 20 branches, il suffit de rajouter une partie. Terminer dans chaque cas par le filtre COORDONNEES POLAIRE (rectangulaire en polaire).

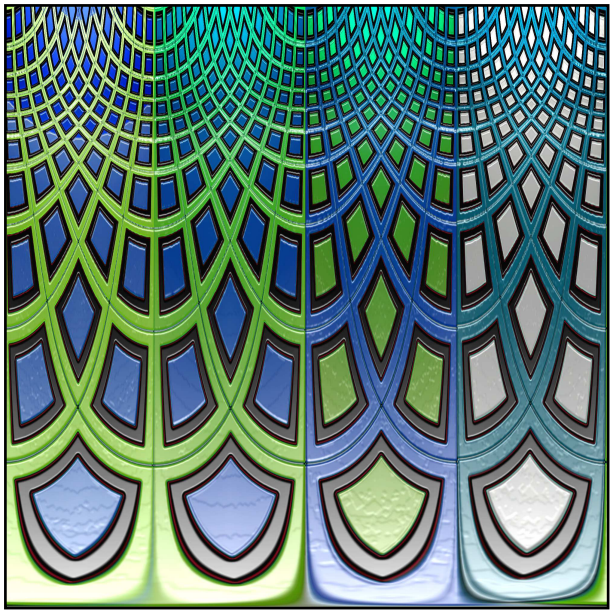


- Aures exemples :



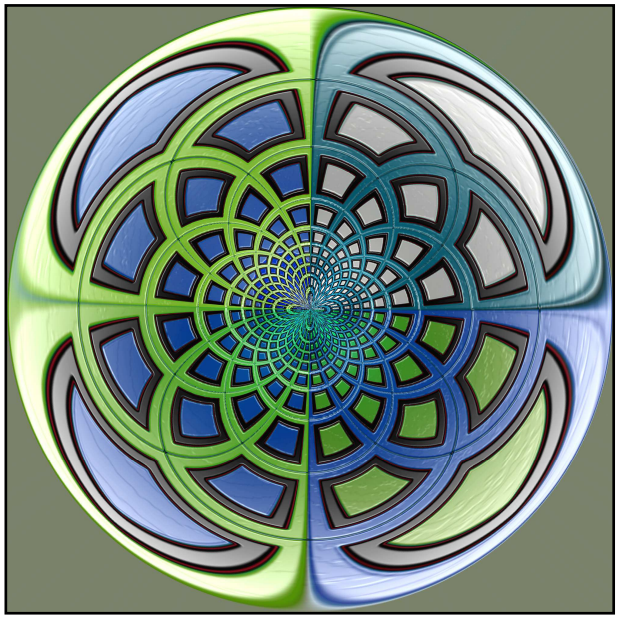


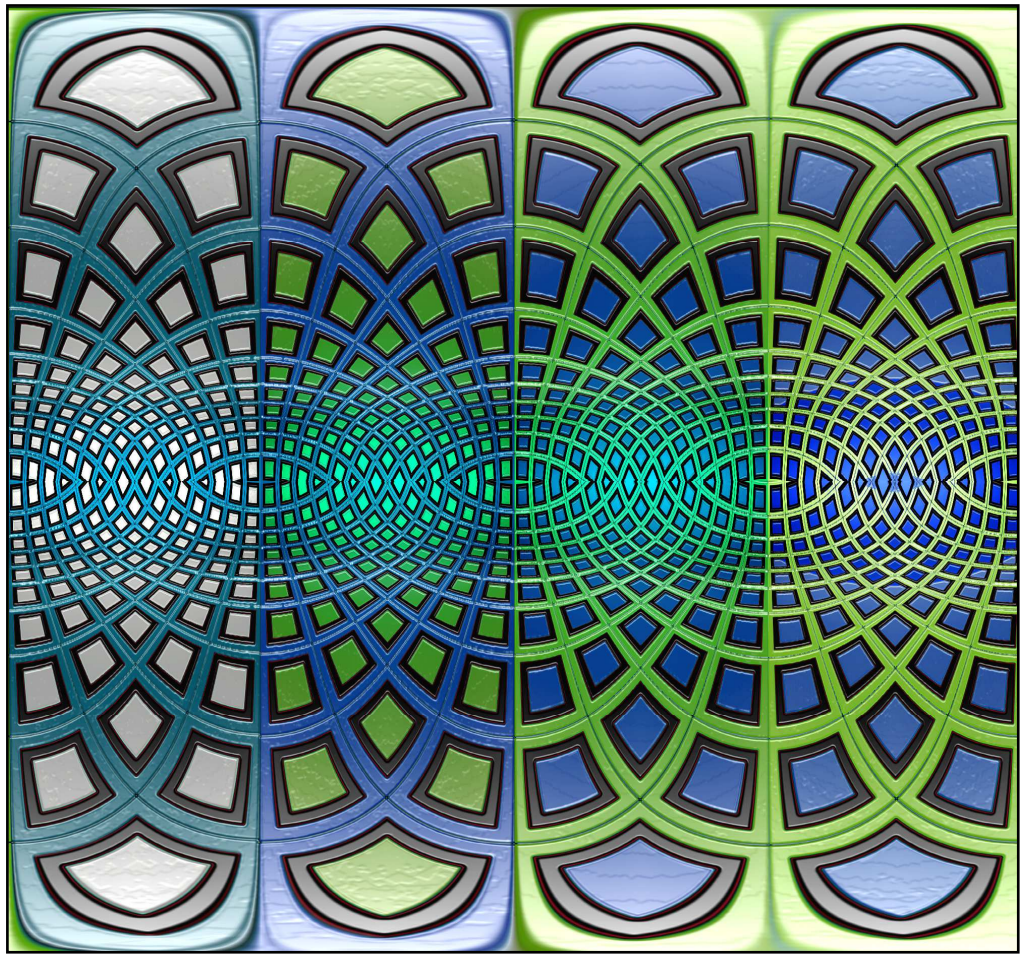


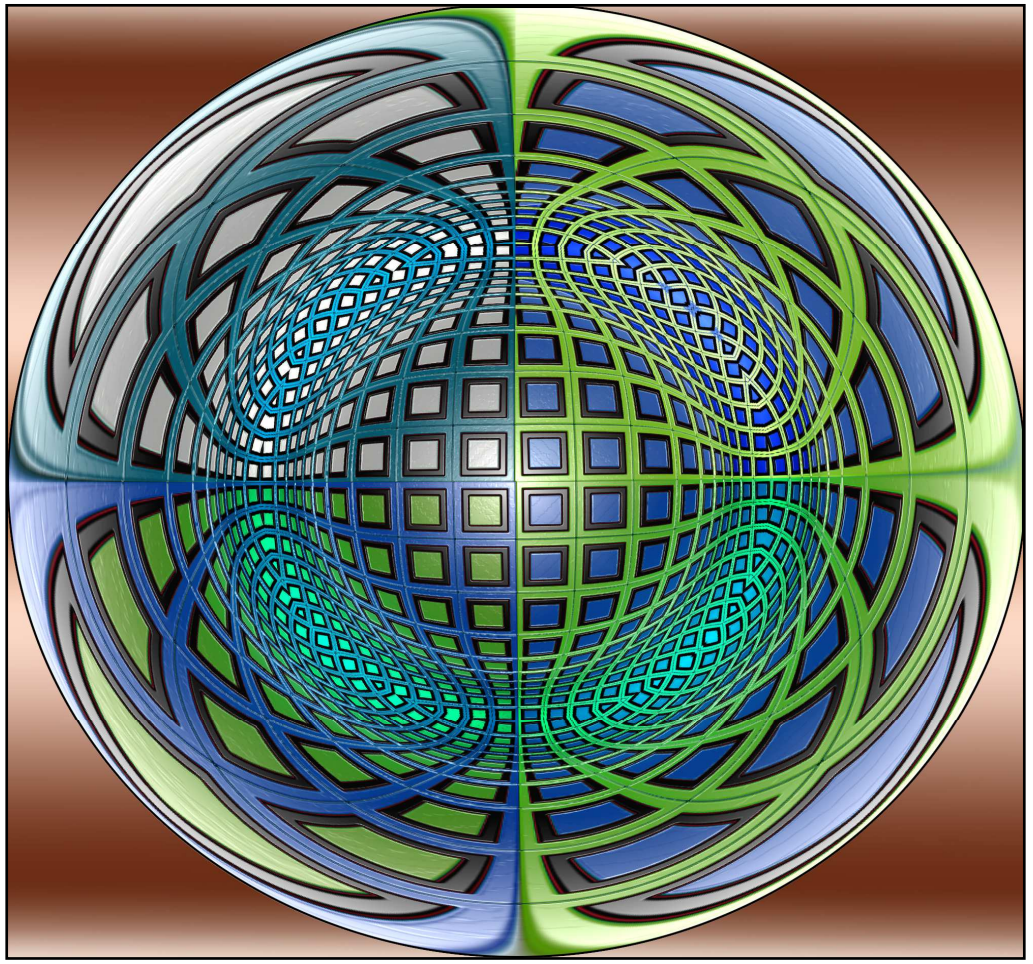


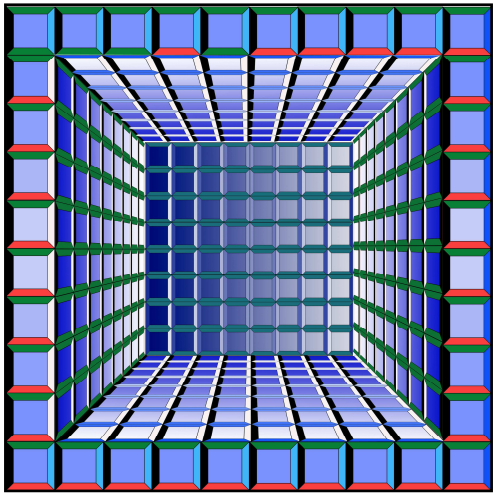
Au dessus : transformation polaire, rajout d'un élément et retransformation polaire inverse pour obtenir la figure formée de trois axes de symétrie.

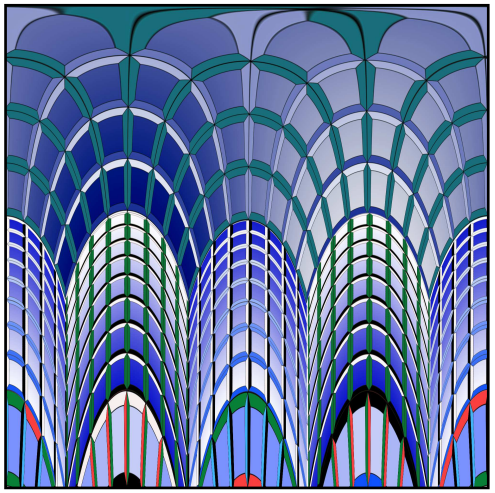
Ci-contre : symétrie verticale de la transformation polaire précédente (polaire en rectangle) et retransformation polaire inverse (rectangulaire en polaire)..

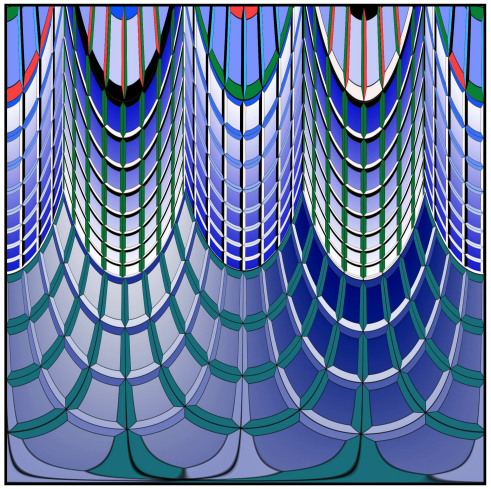


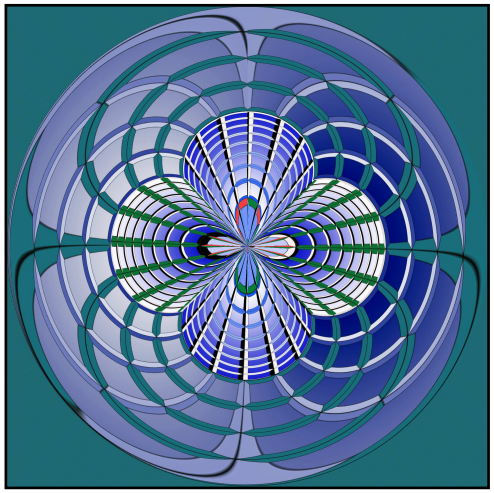


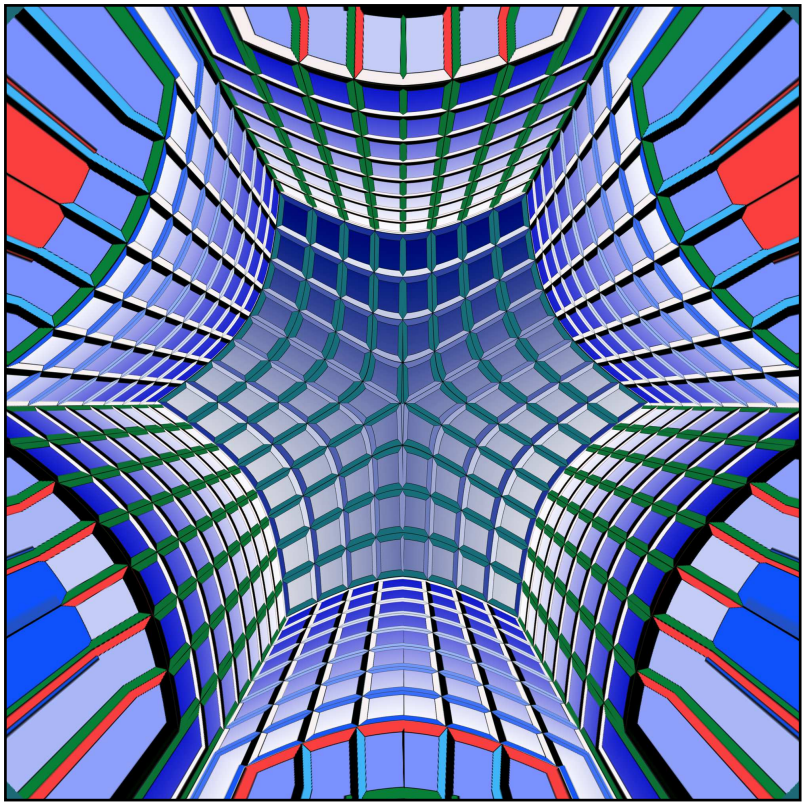












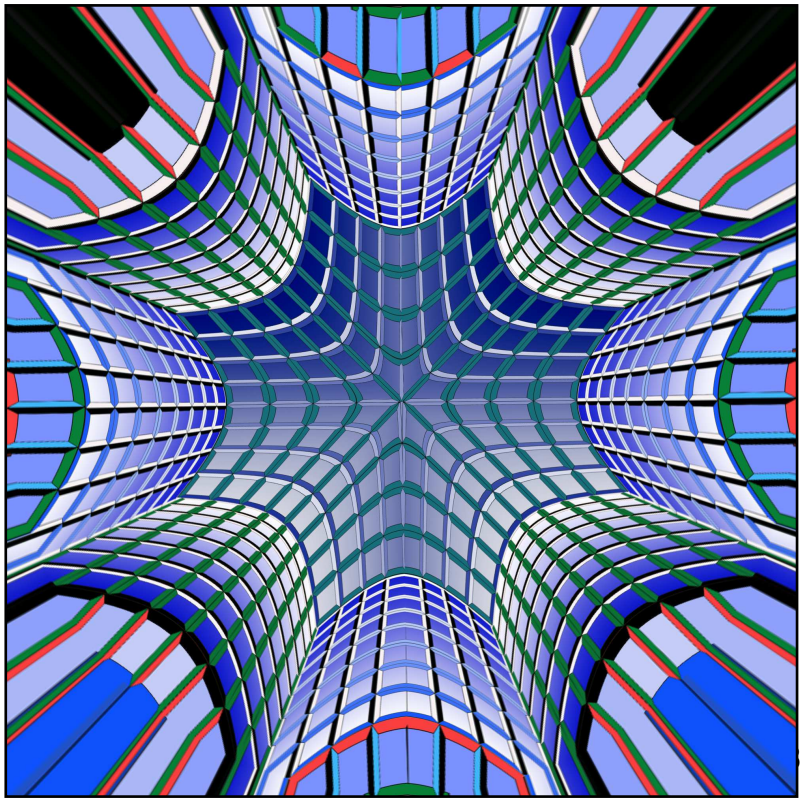
ci-dessus : polaire en rectangle, symétrie verticale, rectangle en polaire.

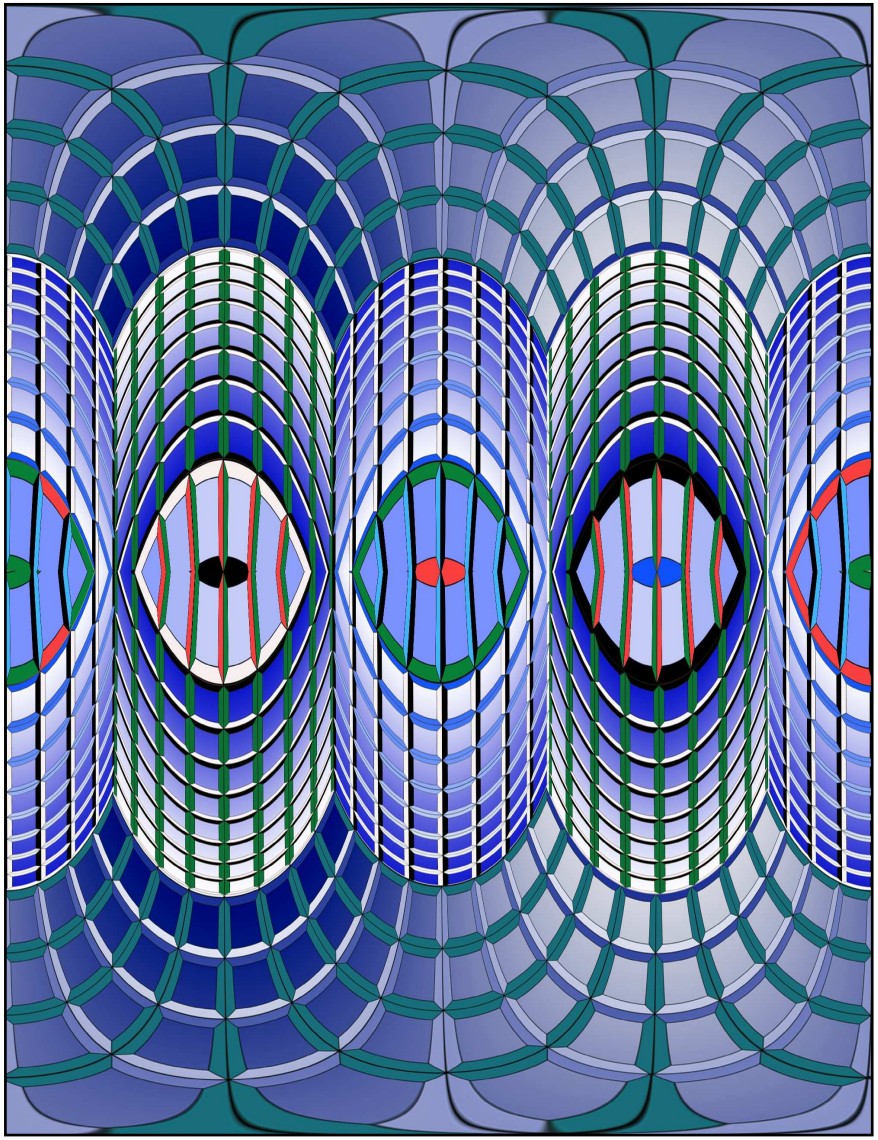
Ci-contre : rajout de deux éléments de symétrie pour obtenir un hexagone

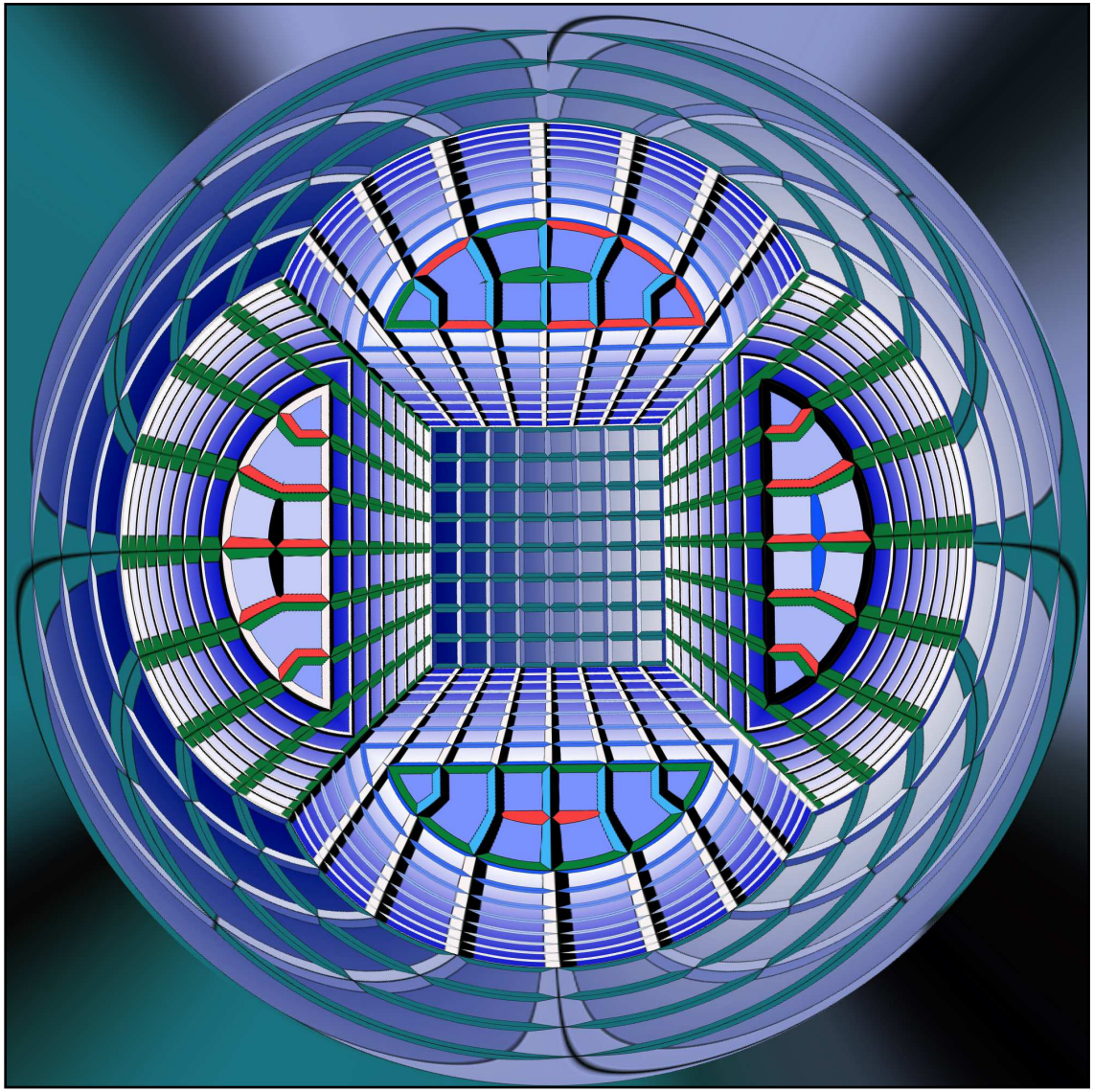
Rajout de quatre éléments de symétrie pour obtenir un octogone.

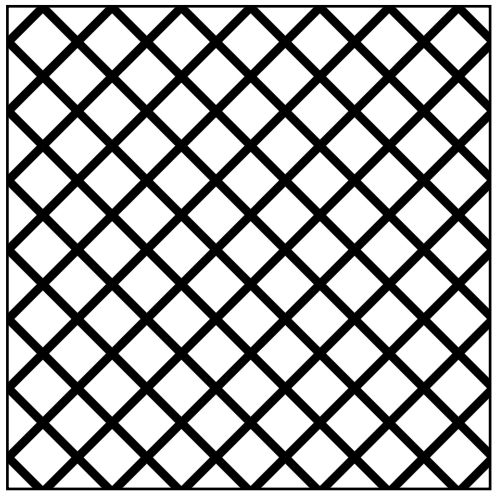
Remarque :

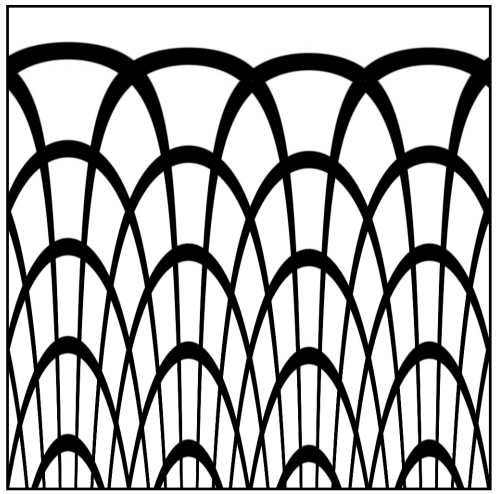
Les transformations polaires sont *polarisées ;* c'est-à-dire que pour chaque orientation de la figure source, on obtient une image différente.

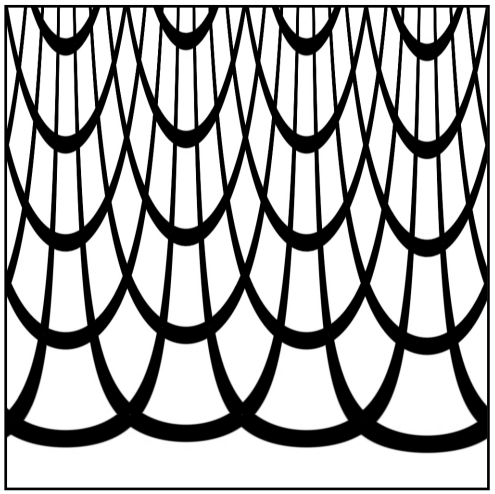


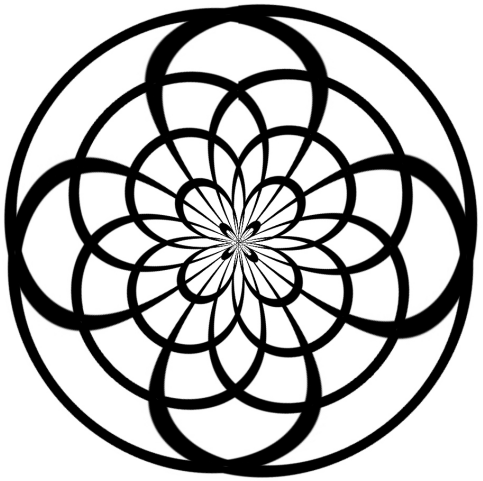


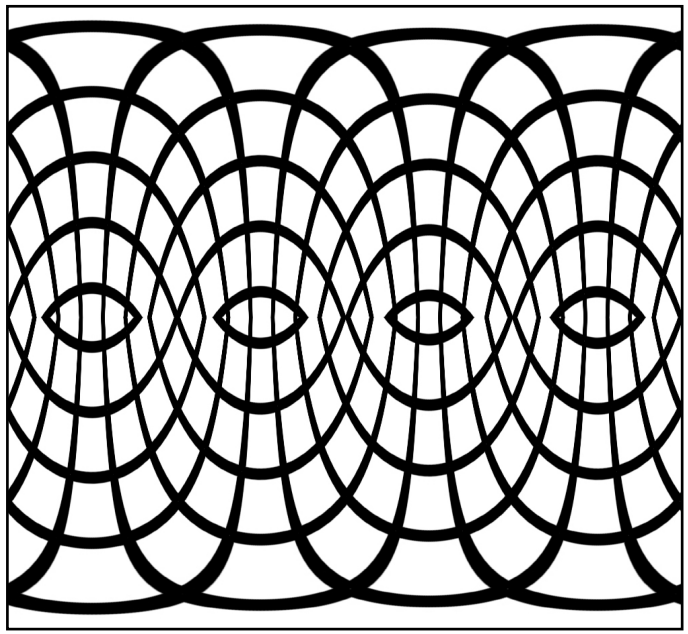


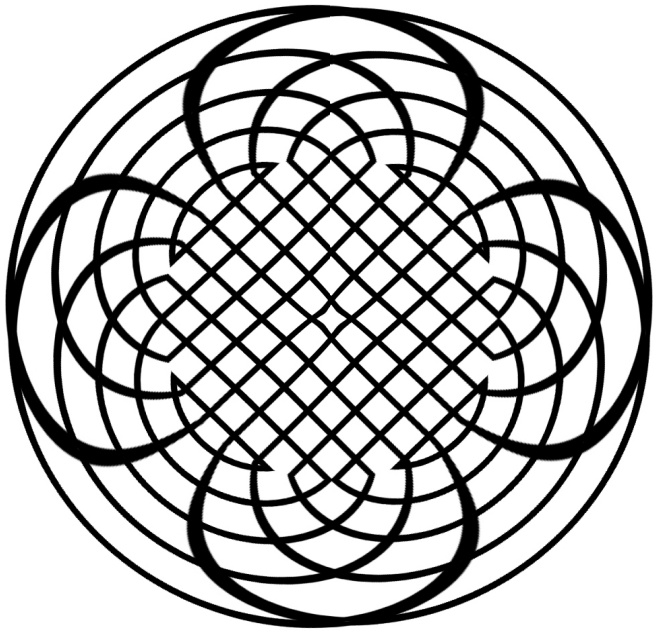


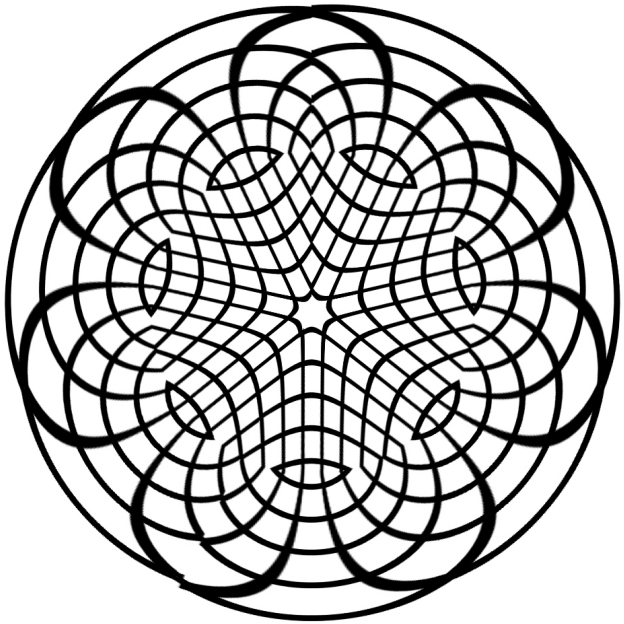


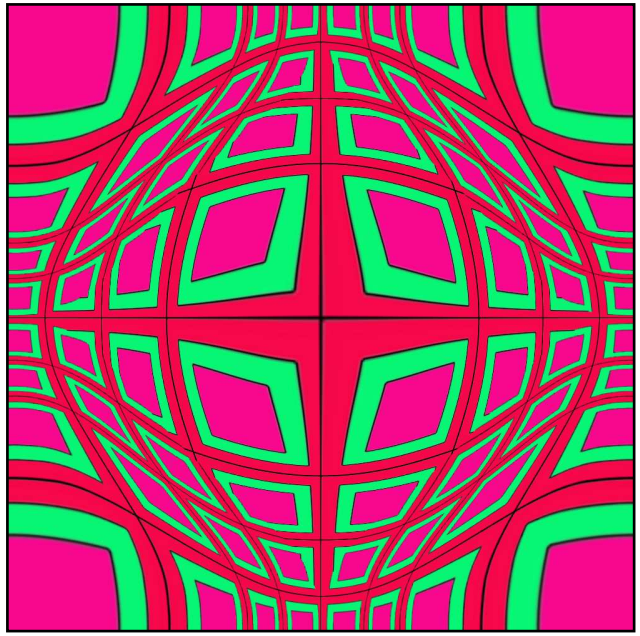






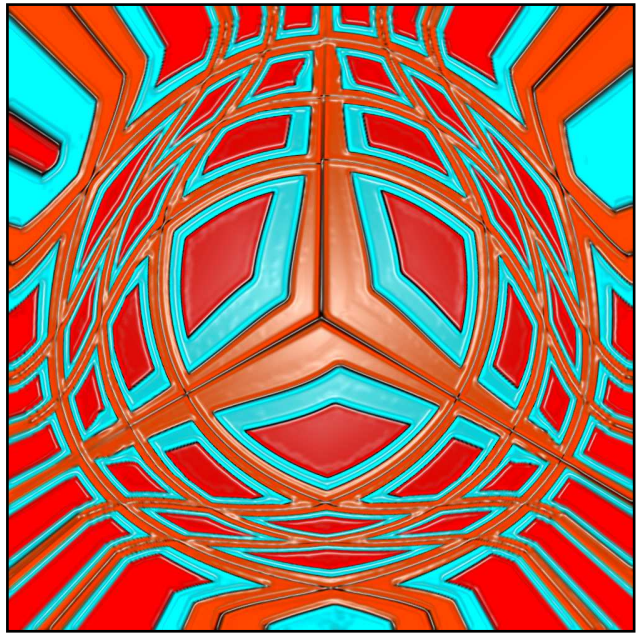
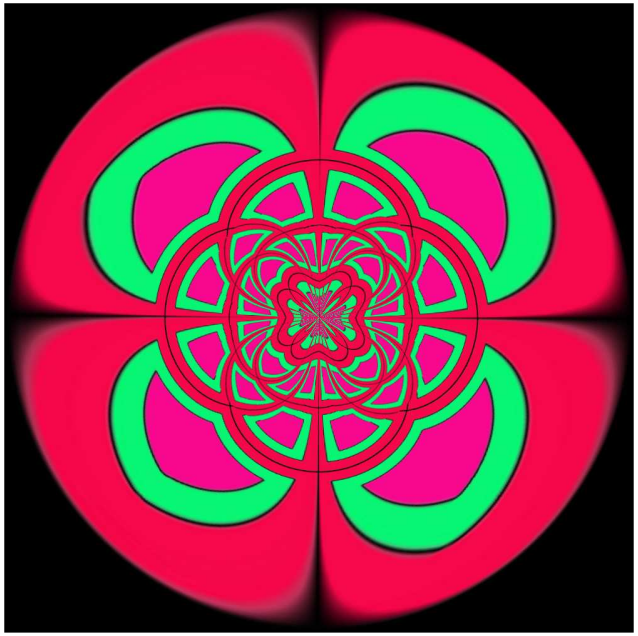
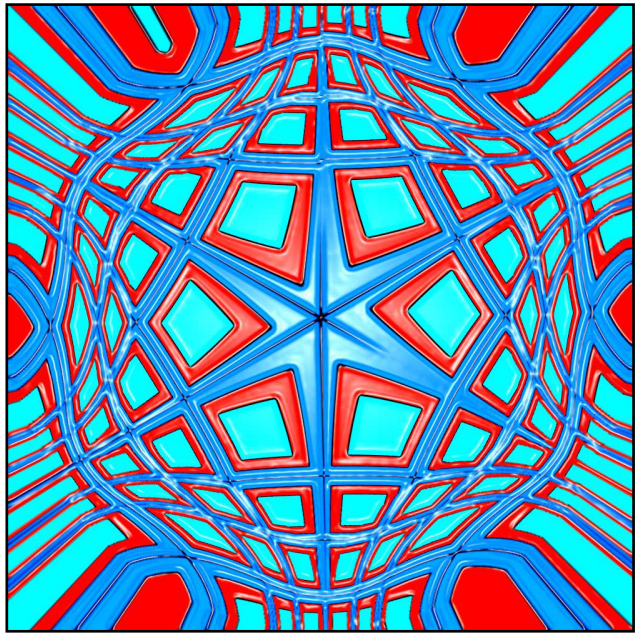
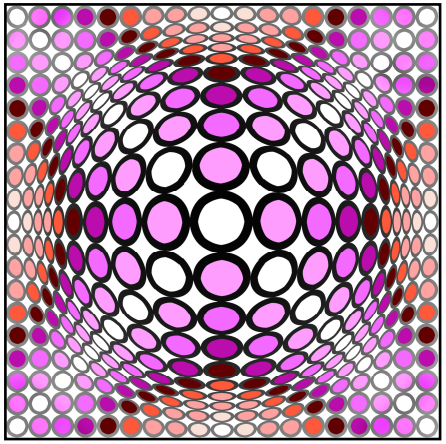
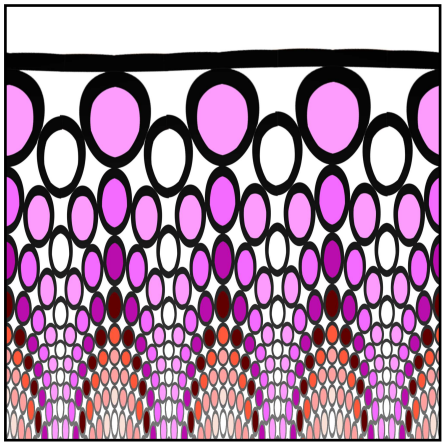
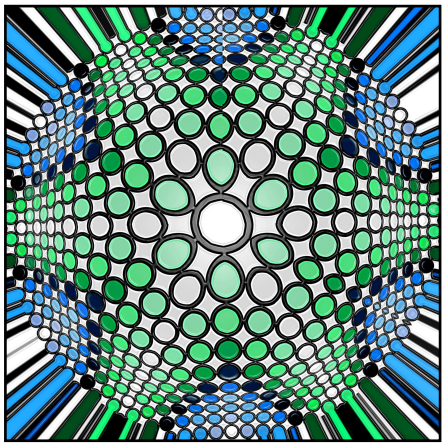
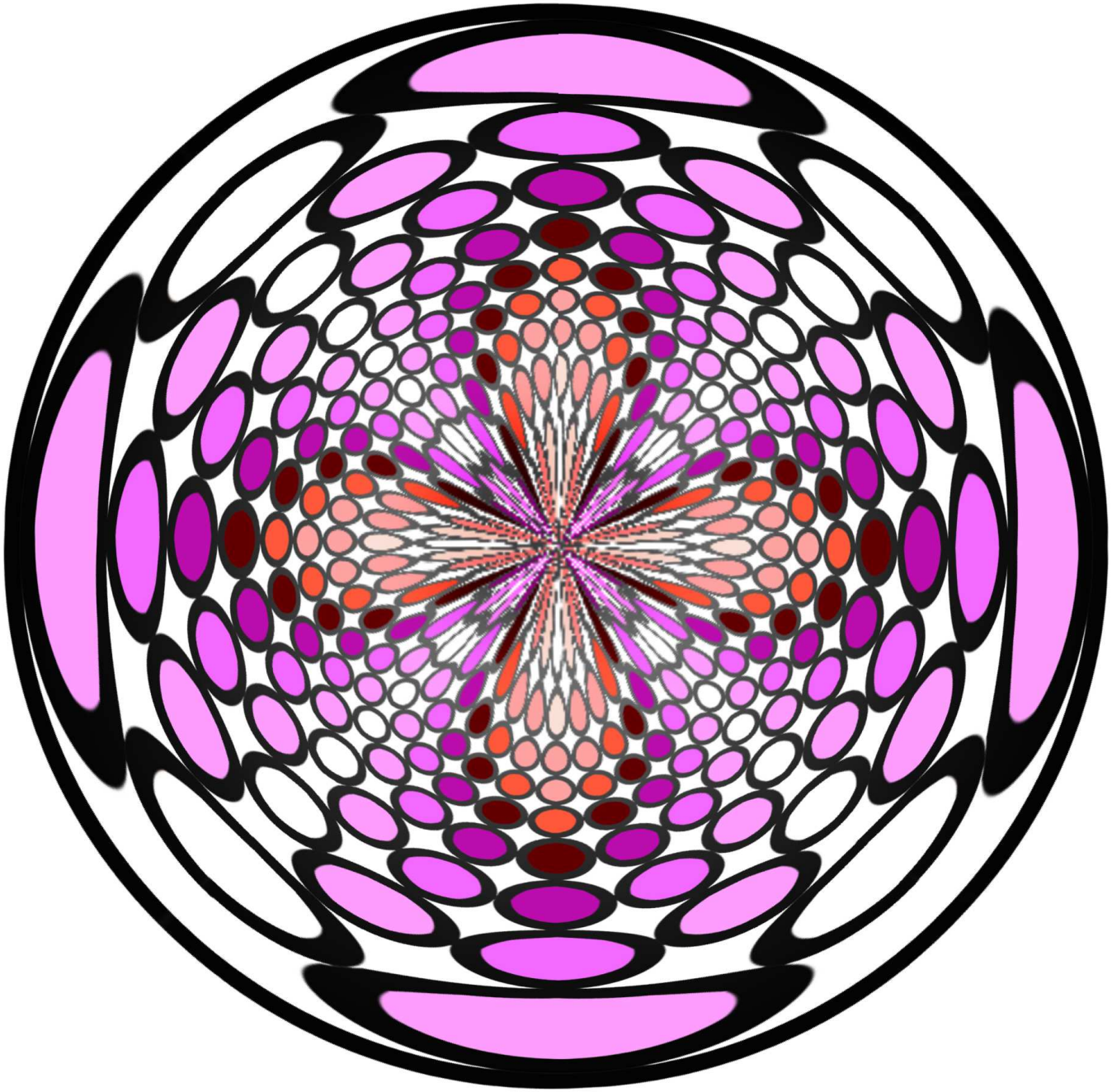
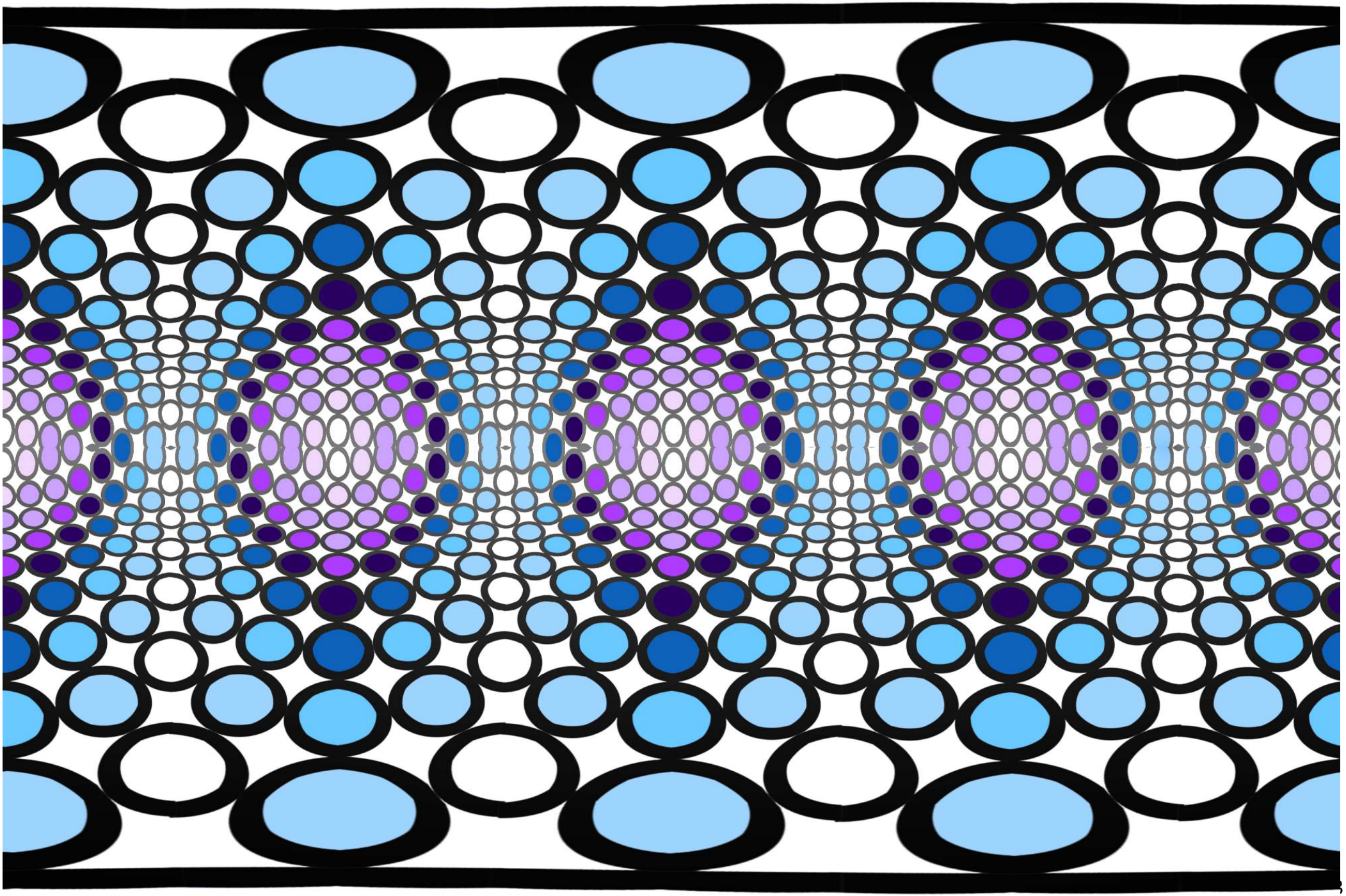
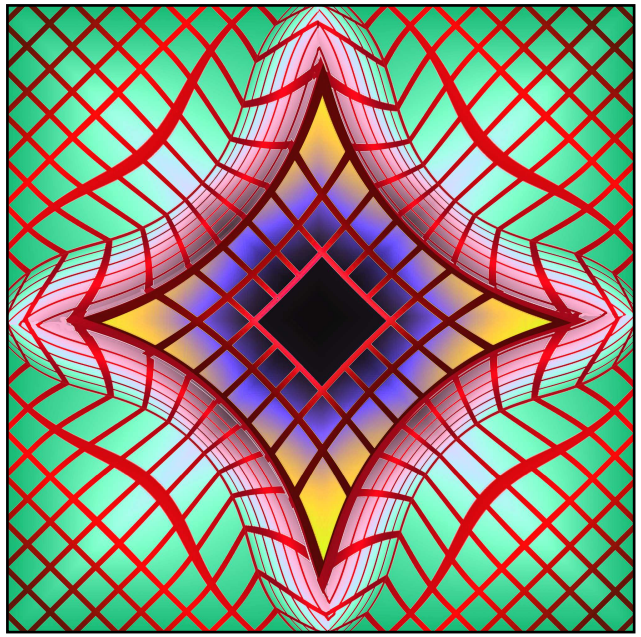
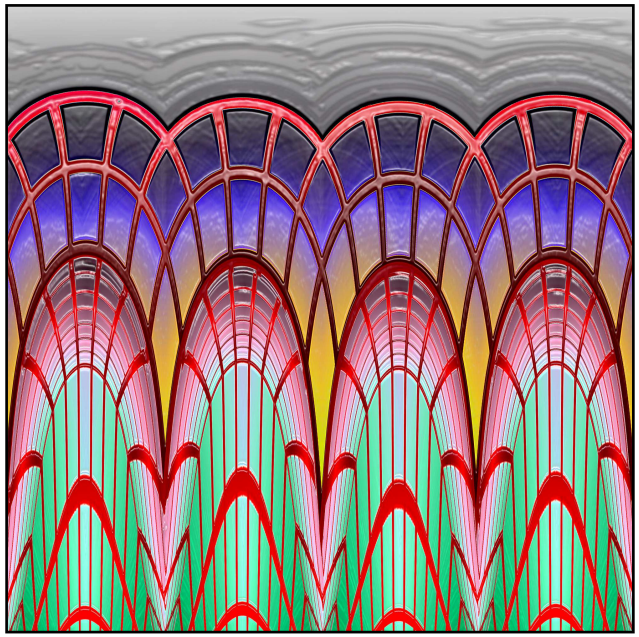
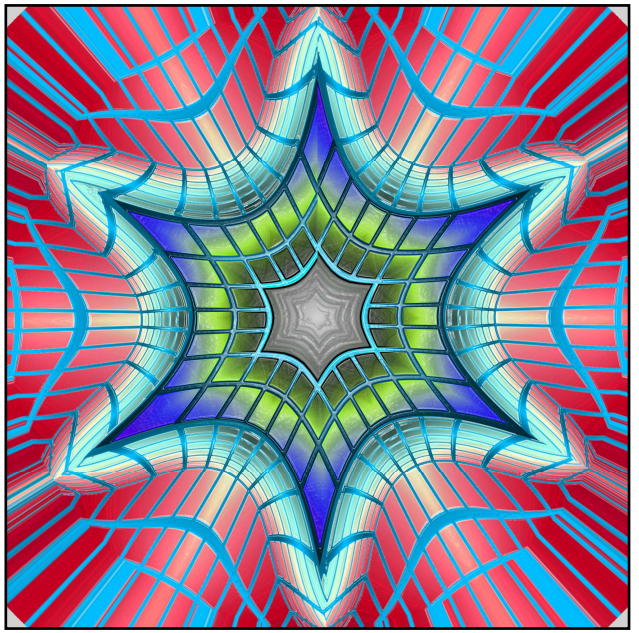
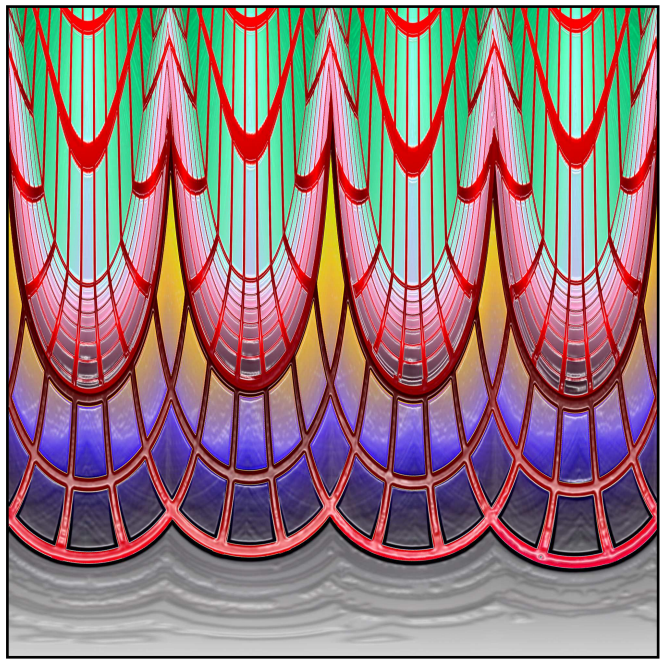
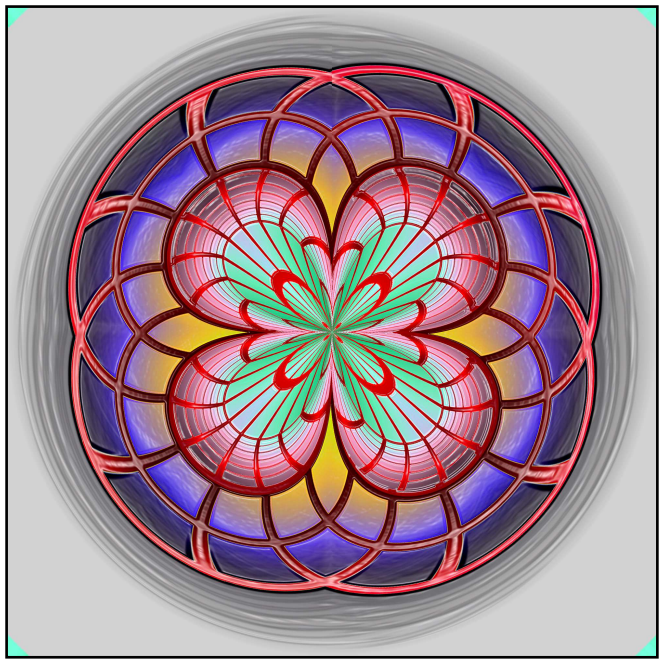
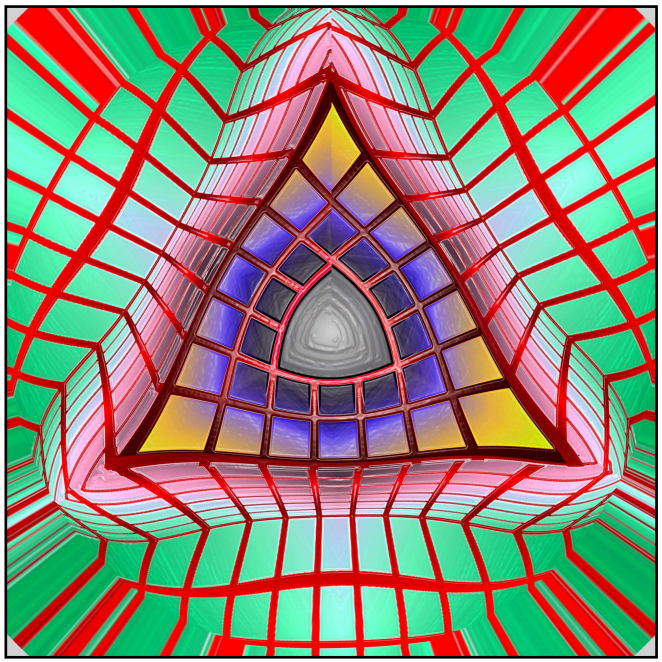
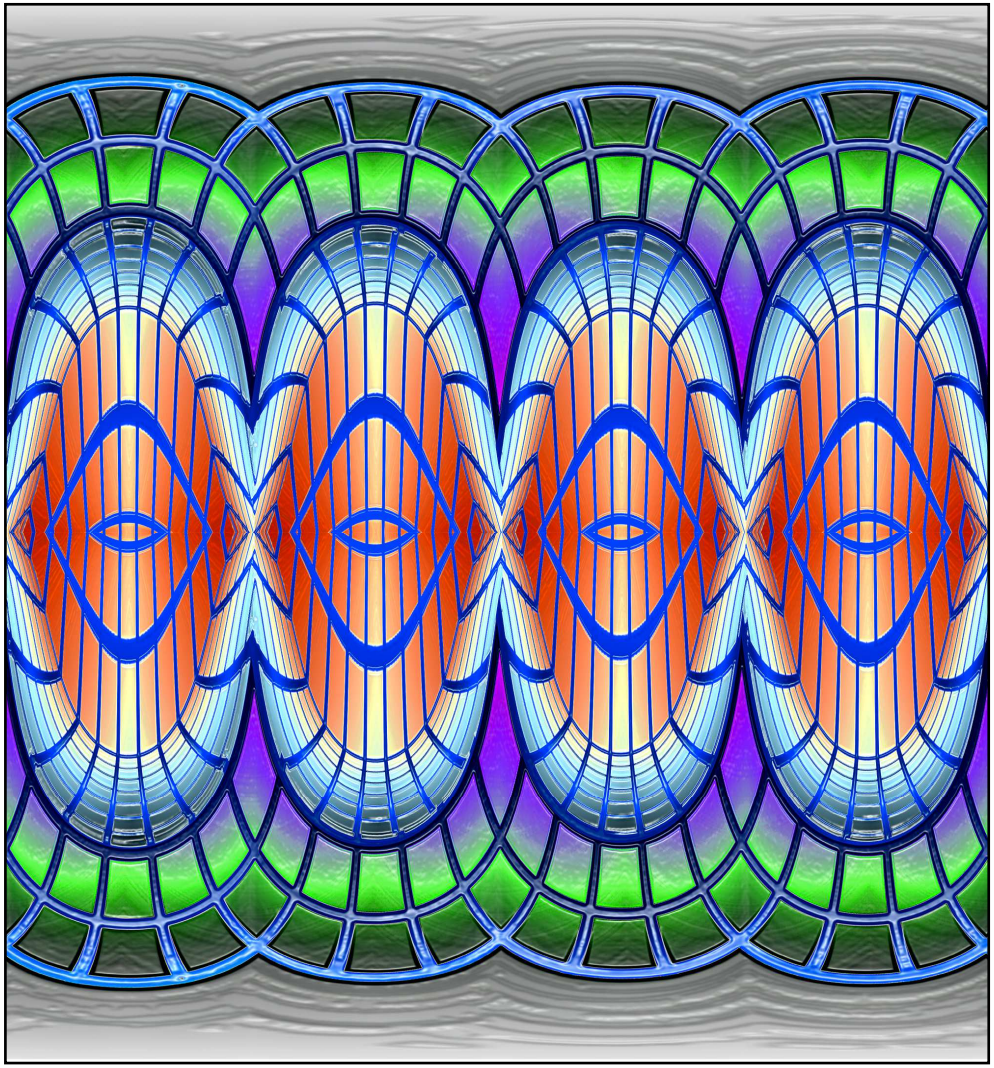
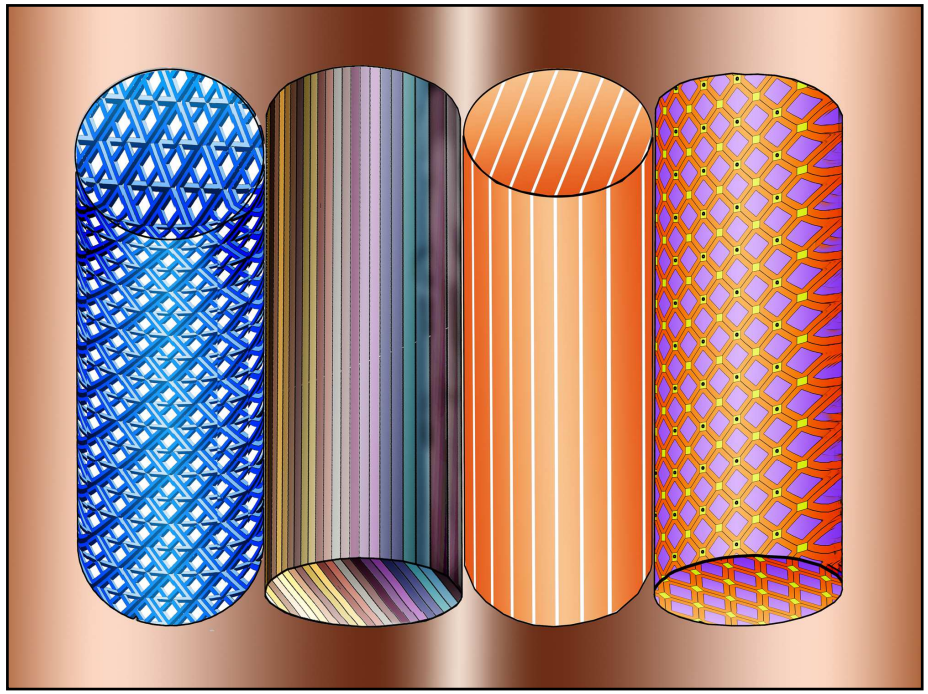
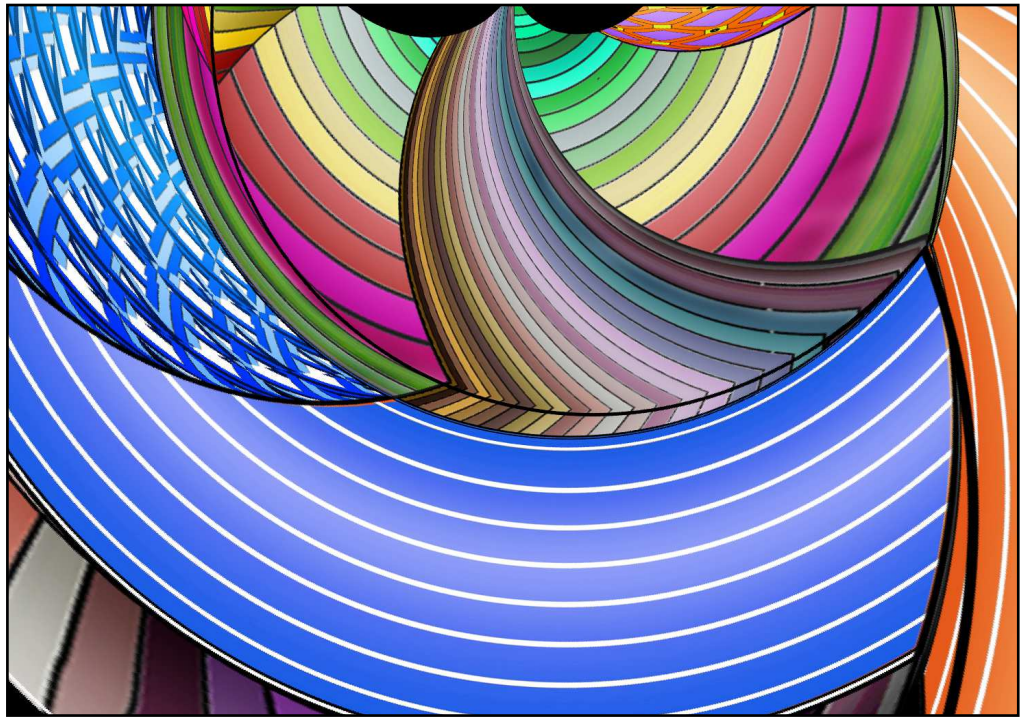
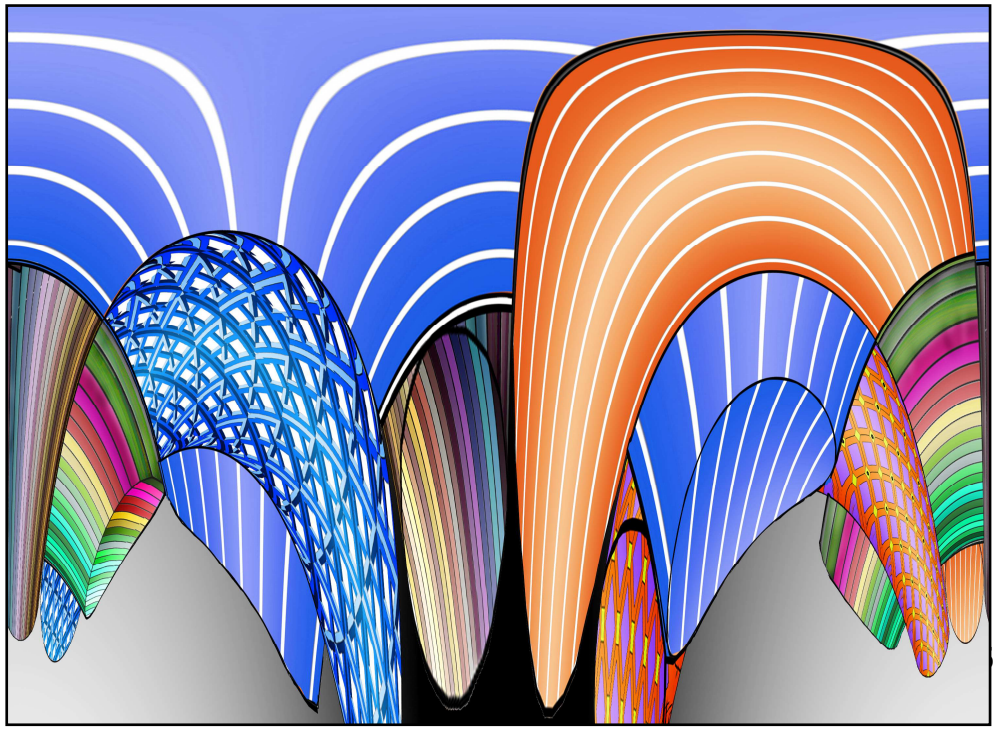
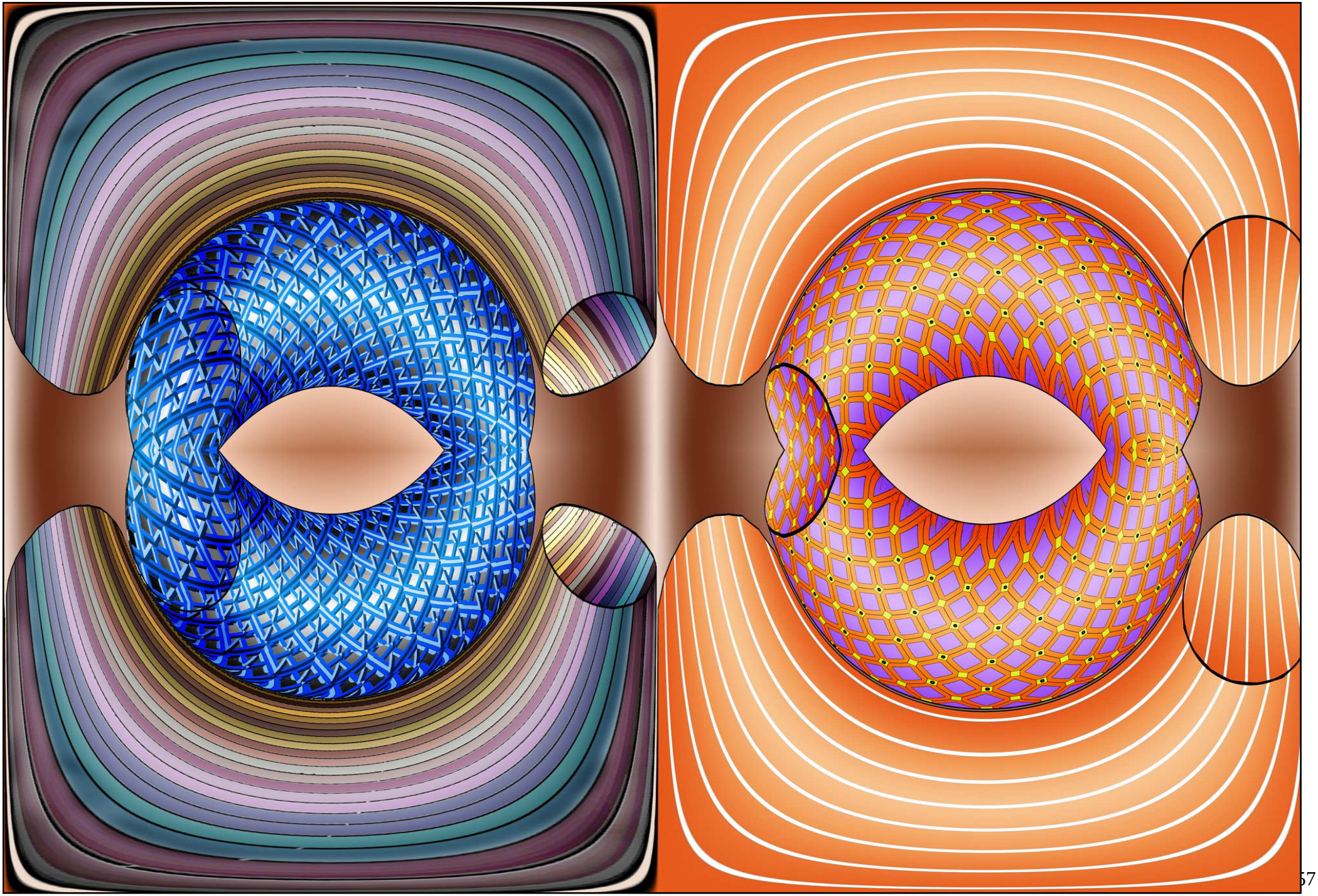
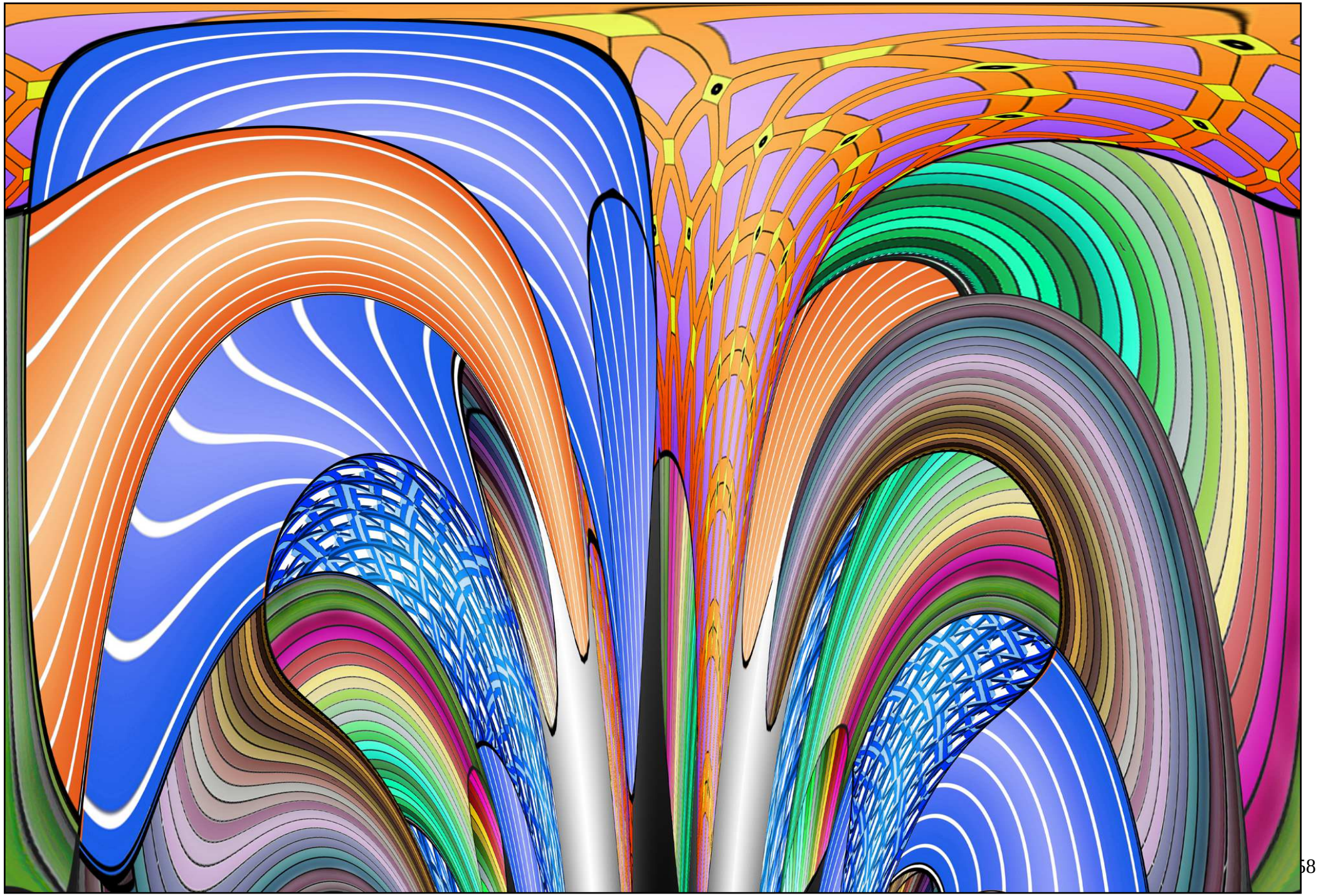






Manipulations sur la transformation polaire ci-contre :

Suppression d’un élément, polarisation inverse et changement de couleur.

Symétrie verticale et polarisation inverse.

Rajout de deux éléments, polarisation inverse et changement decouleur.