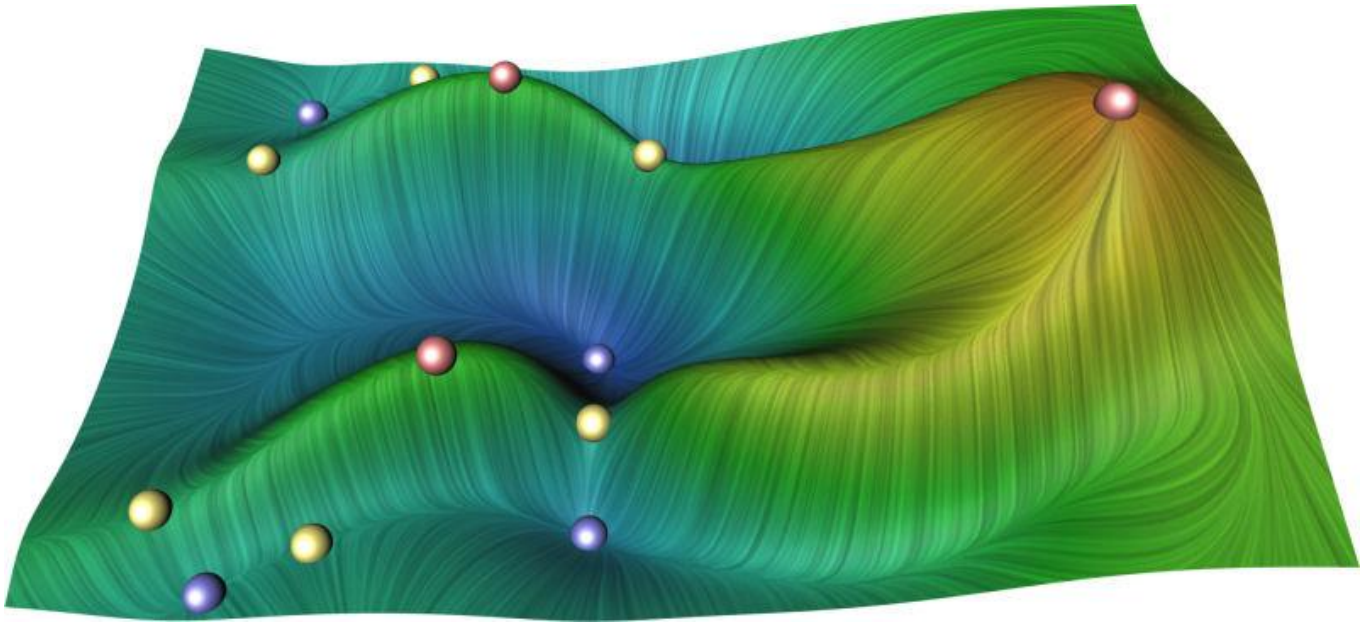
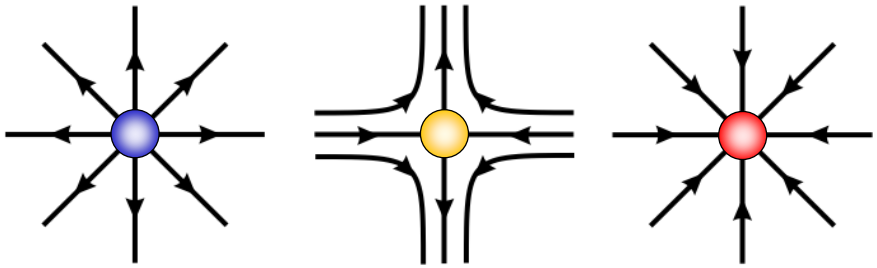
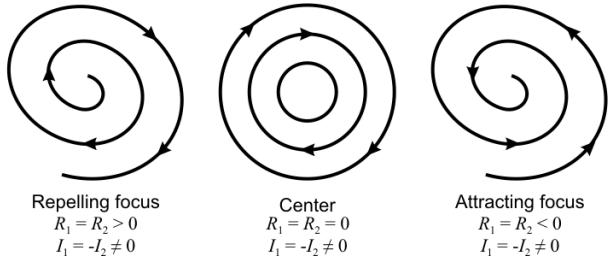


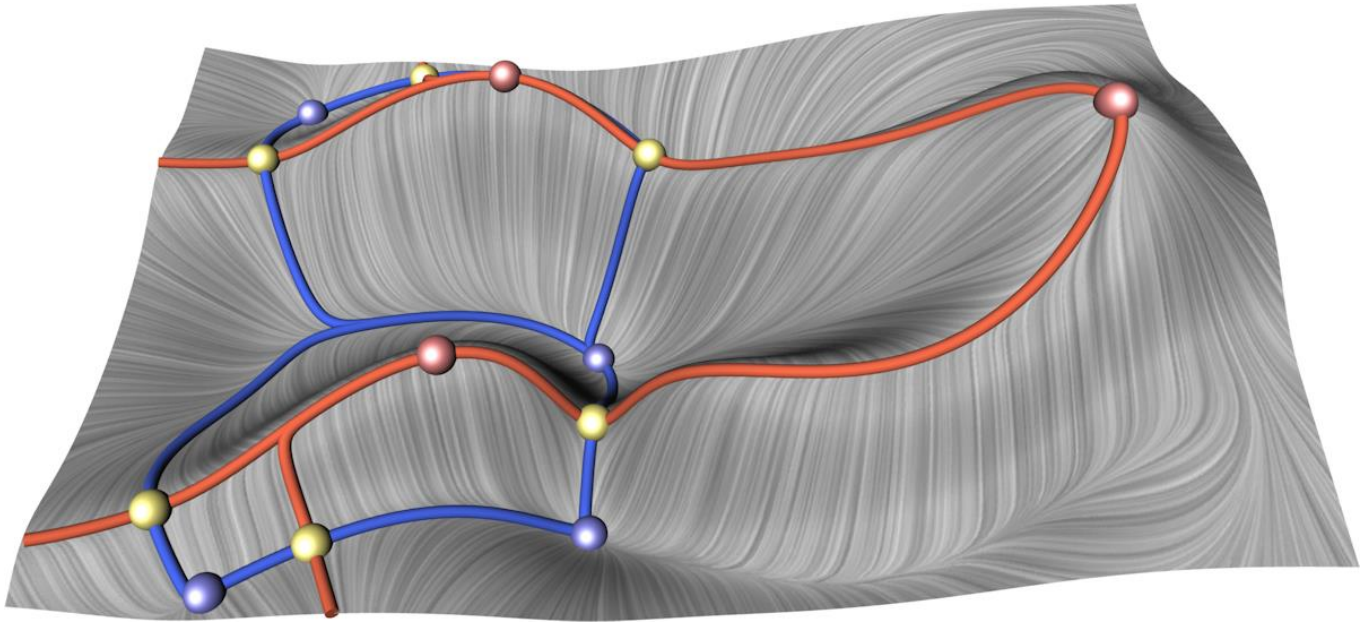
critical points as defined by the gradient

$$\mathbf{v}(\mathbf{x}_0) = \mathbf{0} \quad \text{with} \quad \mathbf{v}(\mathbf{x}_0 \pm \boldsymbol{\epsilon}) \neq \mathbf{0}$$



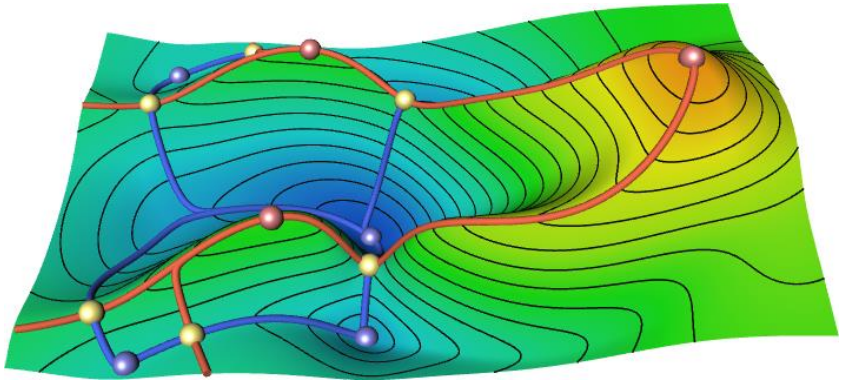
general vector fields

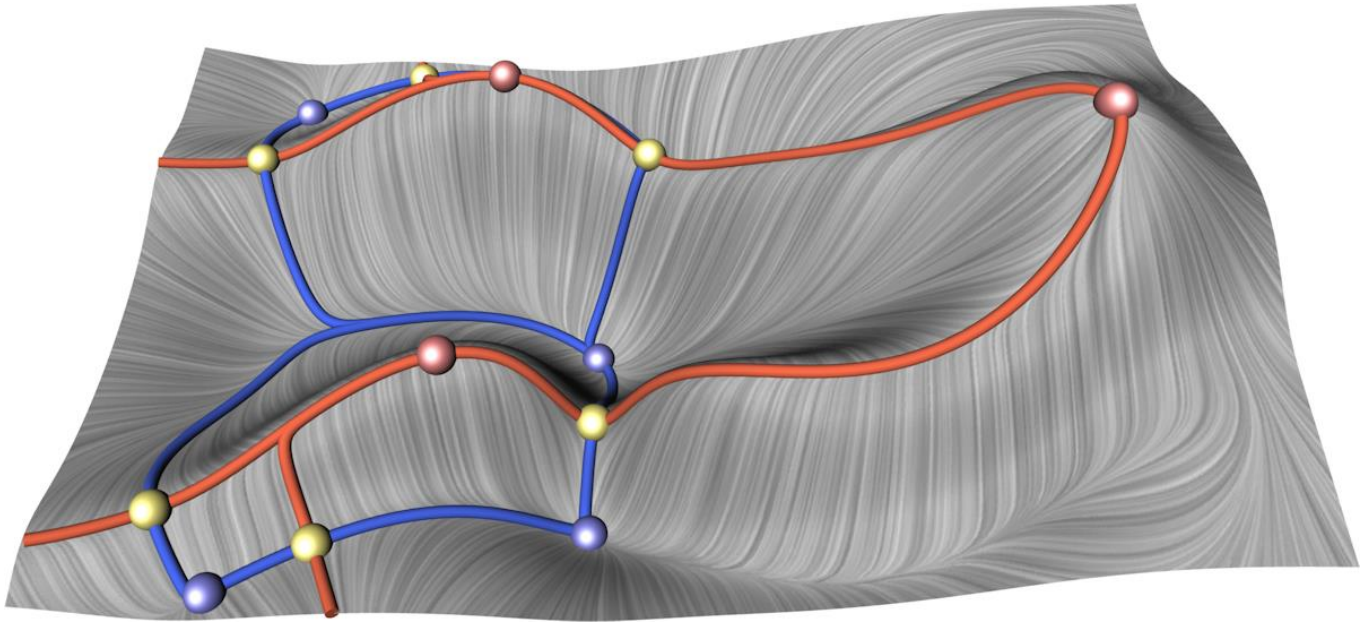




Separatrices

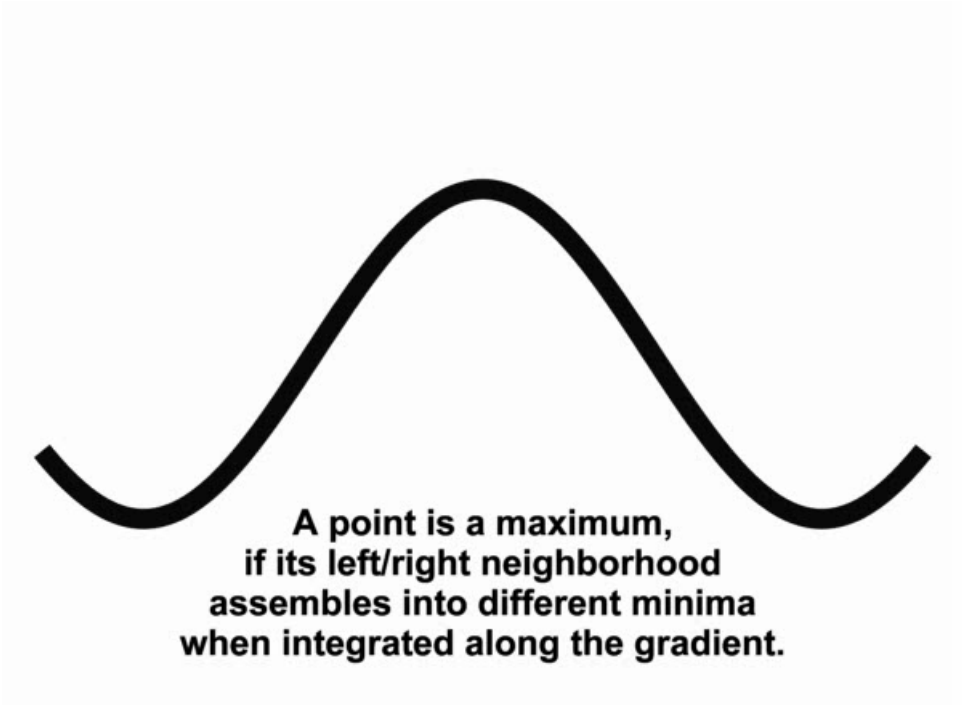
- integral lines of the gradient
- ➔ follow the steepest ascend
- ➔ perpendicular to isocontours





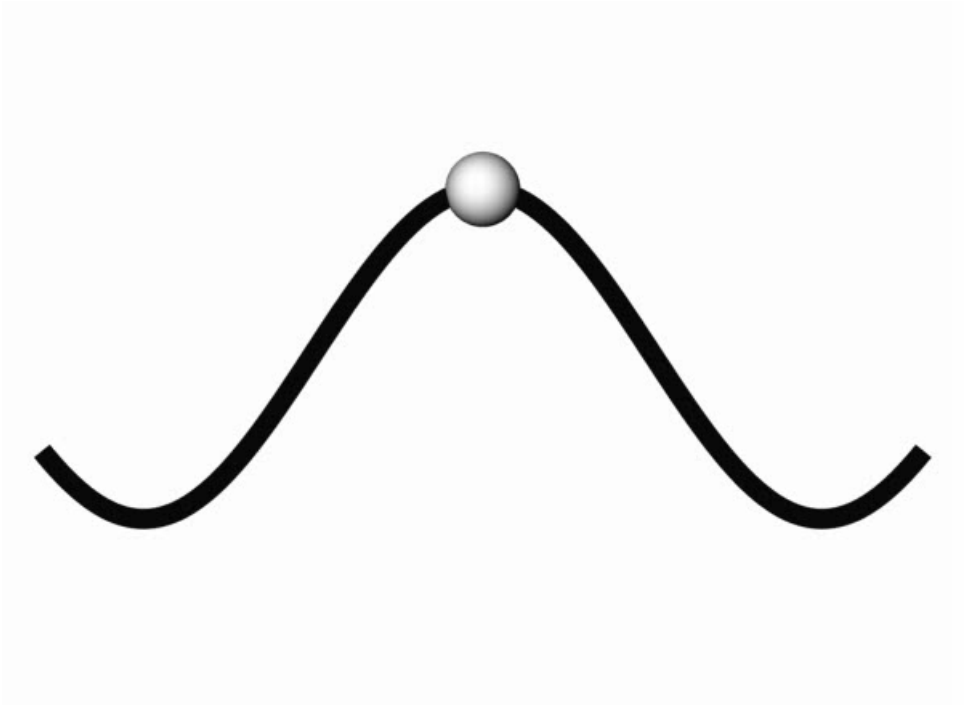
Separatrices

- integral lines of the gradient
- ➔ follow the steepest ascend
- ➔ perpendicular to isocontours
- started at saddle points
- extremal structures



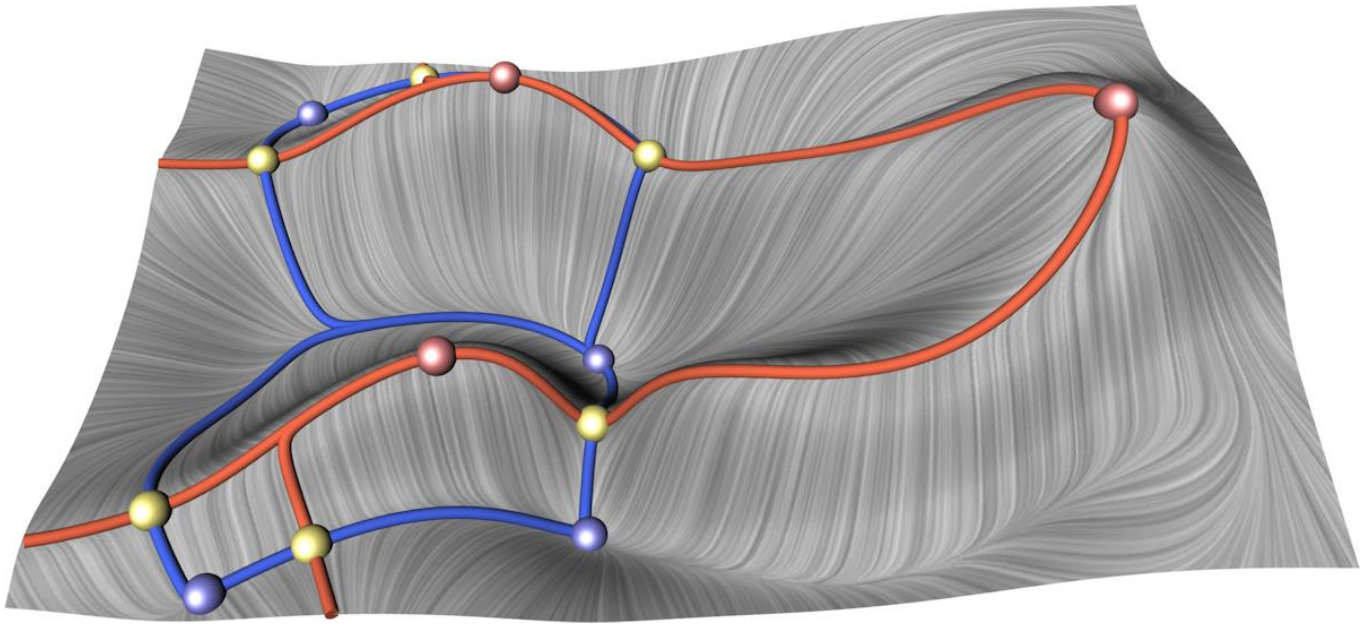
Separatrices

- integral lines of the gradient
- ➔ follow the steepest ascend
- ➔ perpendicular to isocontours
- started at saddle points
- **extremal structures**



Separatrices

- integral lines of the gradient
- ➔ follow the steepest ascend
- ➔ perpendicular to isocontours
- started at saddle points
- **extremal structures**



Separatrices

- integral lines of the gradient
- started at saddle points
- extremal structures

- global structures
  we cannot decide locally, whether a point is on a separatrix or not.
- parallel computation limited