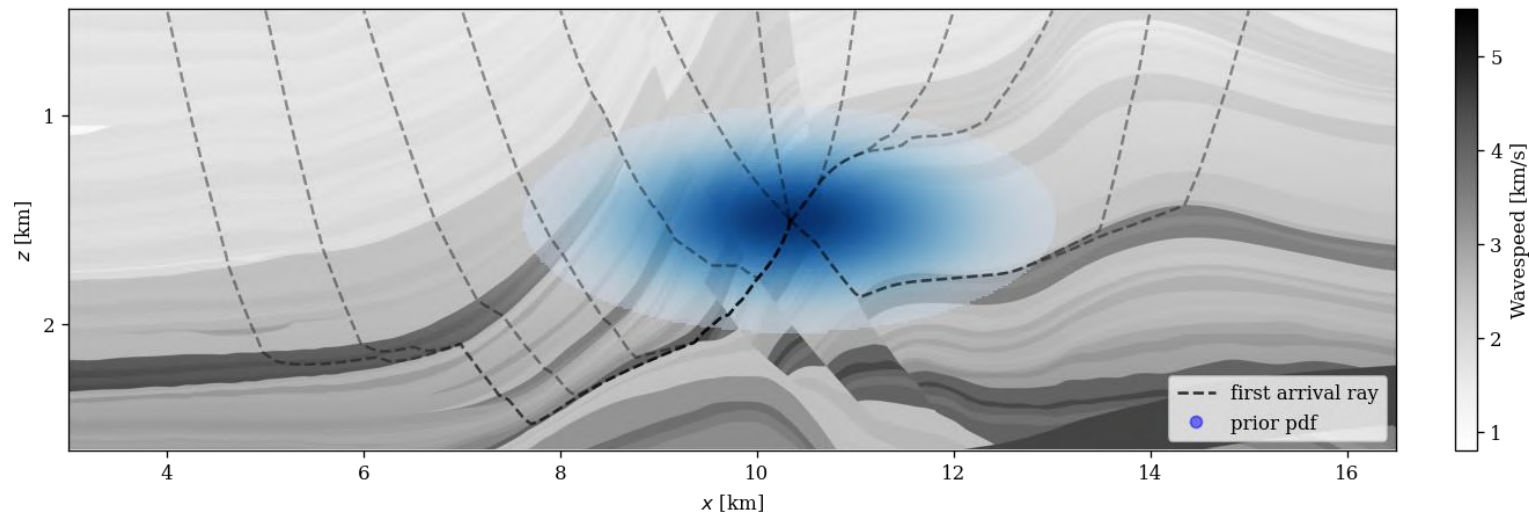# Experimental Design for Interrogation Problems
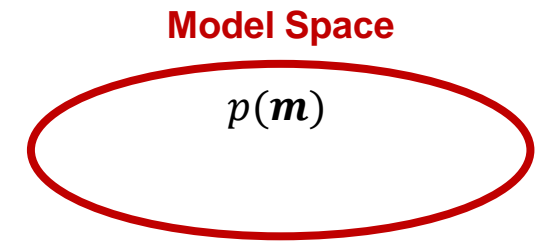
Dominik Strutz & Andrew Curtis
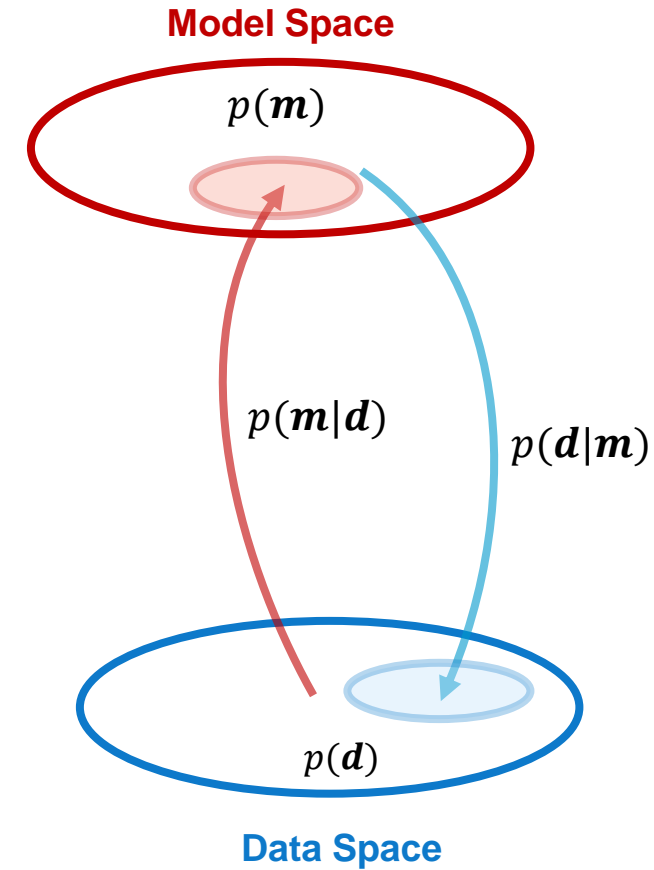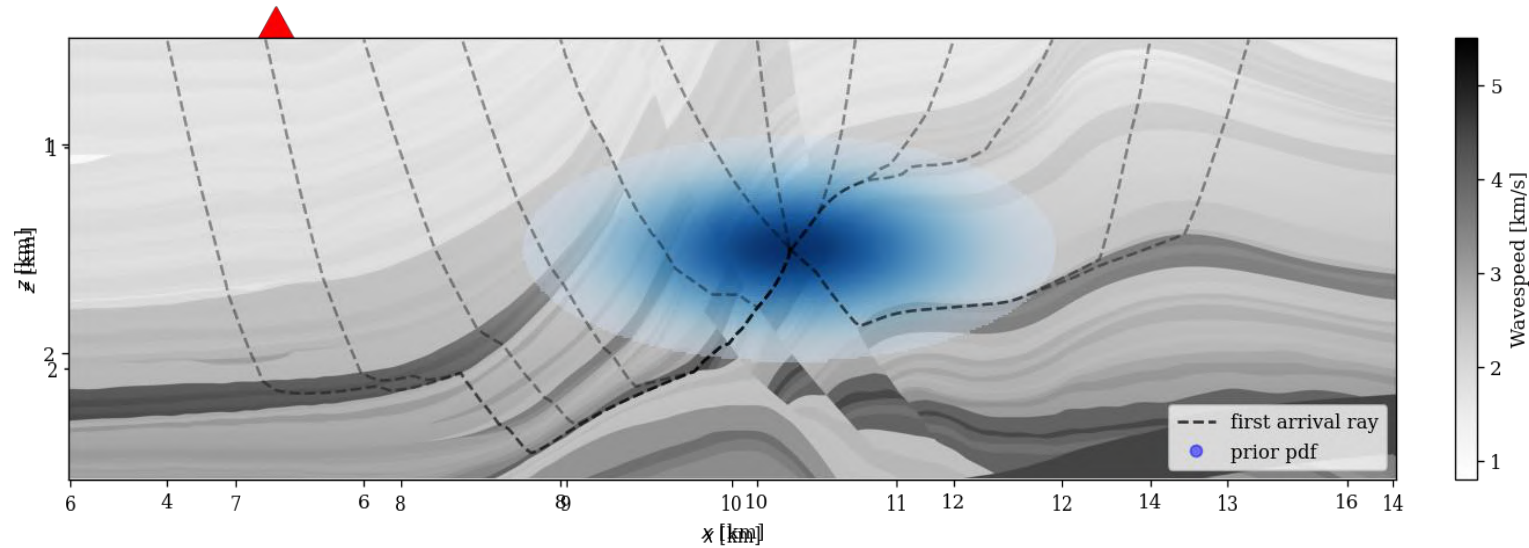
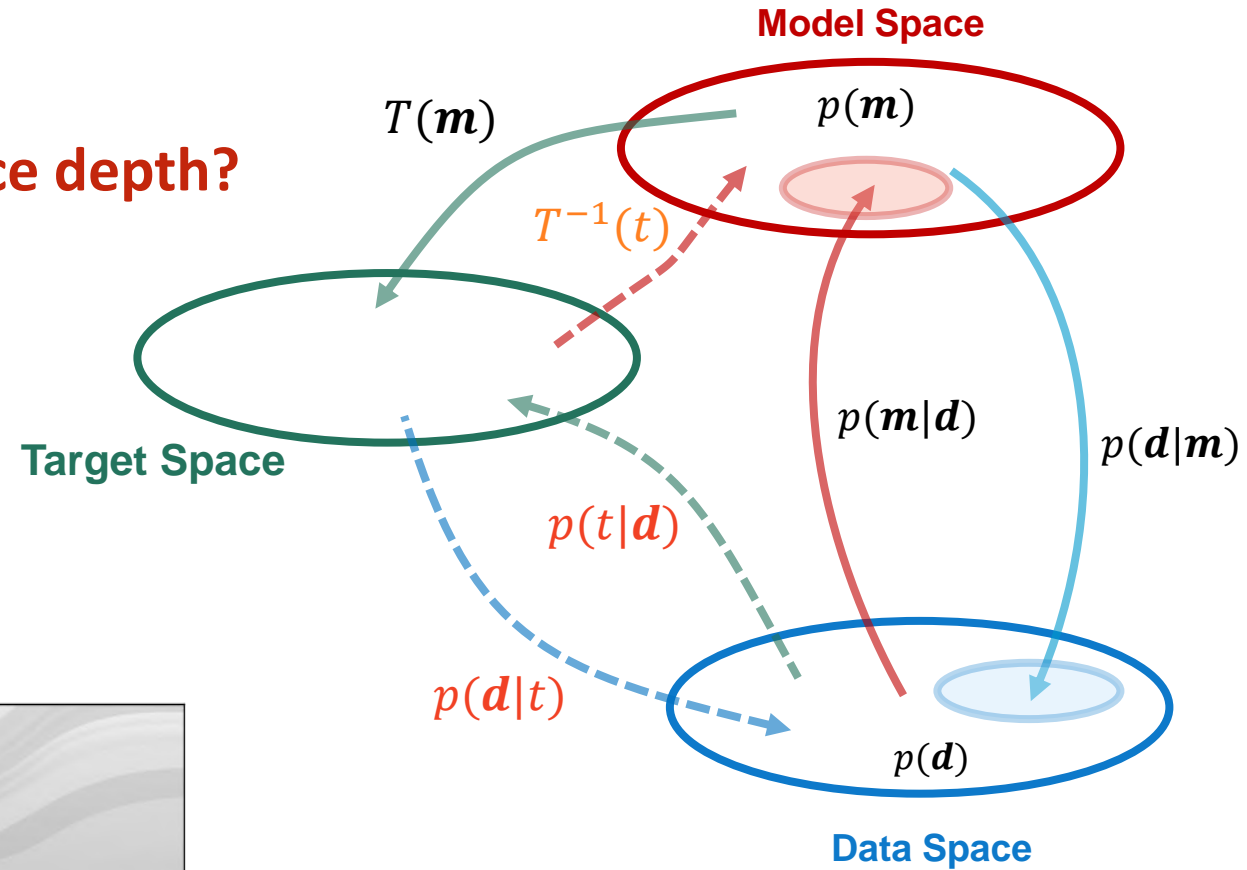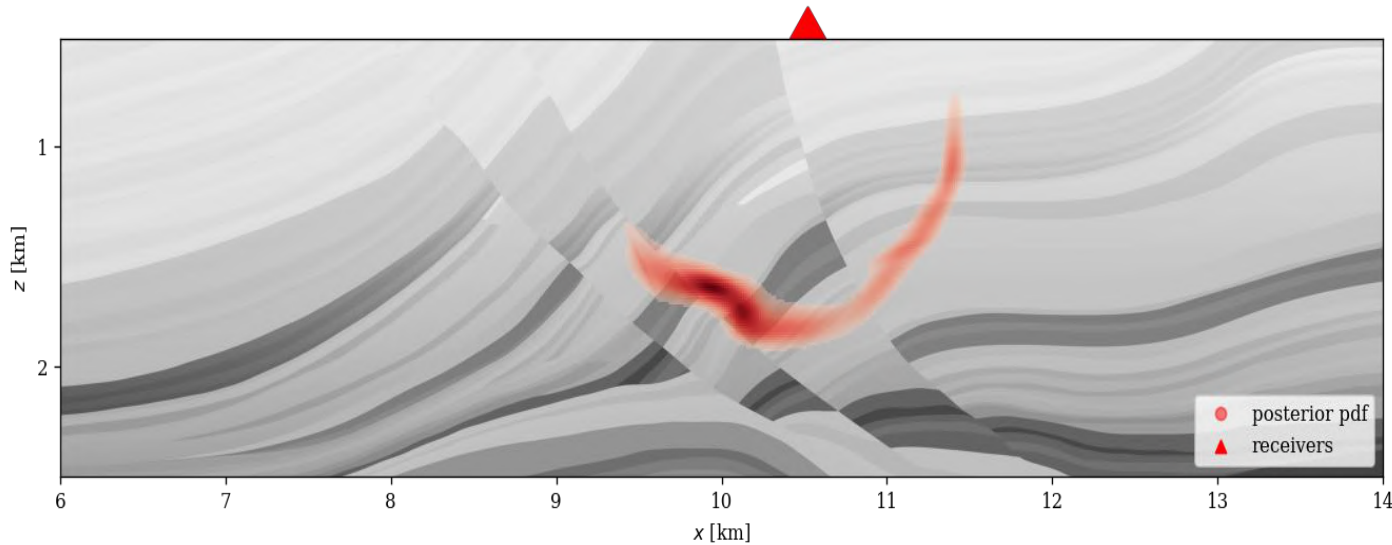# Source Location Example

$$p(\boldsymbol{m})$$

Source Location Example

What is the best design to constrain the hypocenter?

Source Location Example

What is the best design to constrain the source depth?

Model Space $p(\boldsymbol{m})$

$T(\boldsymbol{m})$

$T^{-1}(t)$

Target Space

$p(t|\boldsymbol{d})$

$p(\boldsymbol{m}|\boldsymbol{d})$

$p(\boldsymbol{d}|\boldsymbol{m})$

$p(\boldsymbol{d}|t)$
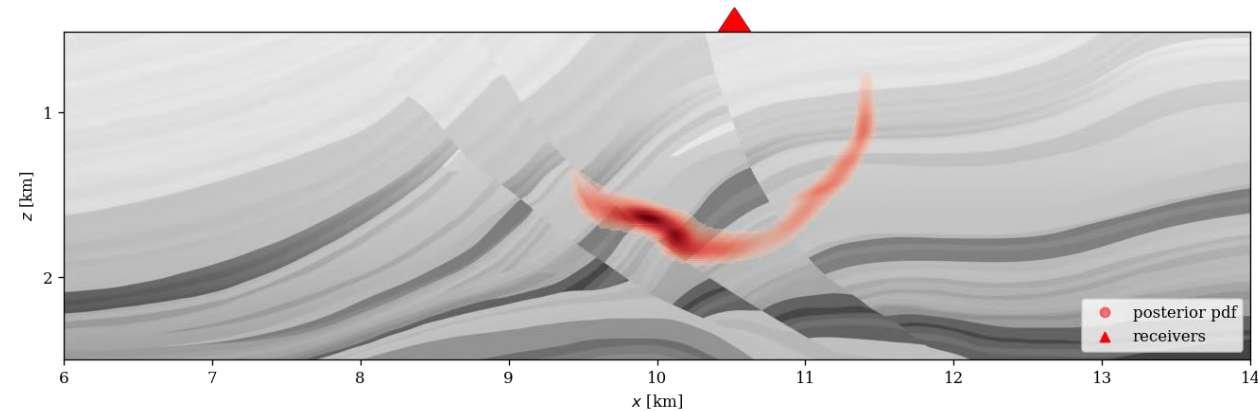
$p(\boldsymbol{d})$

Data Space

How to find this design ?

How to find this design ?
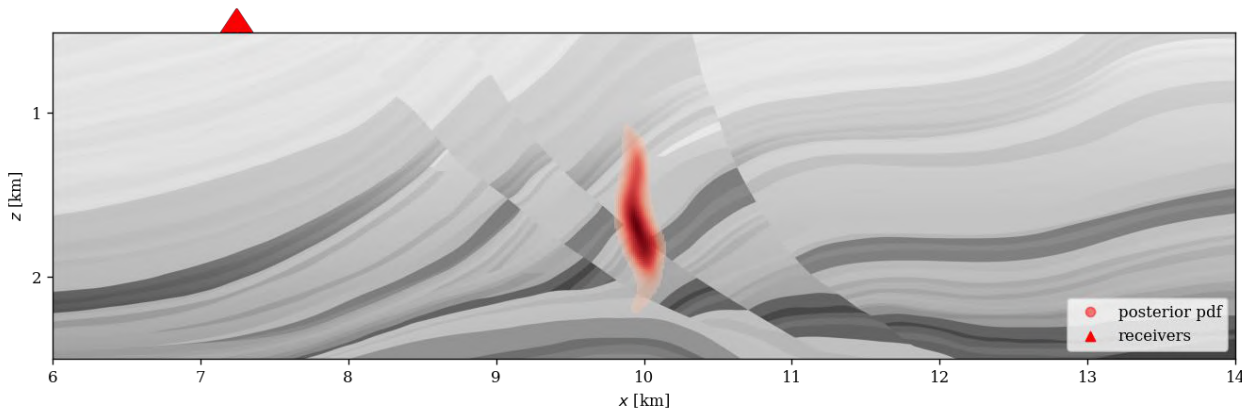
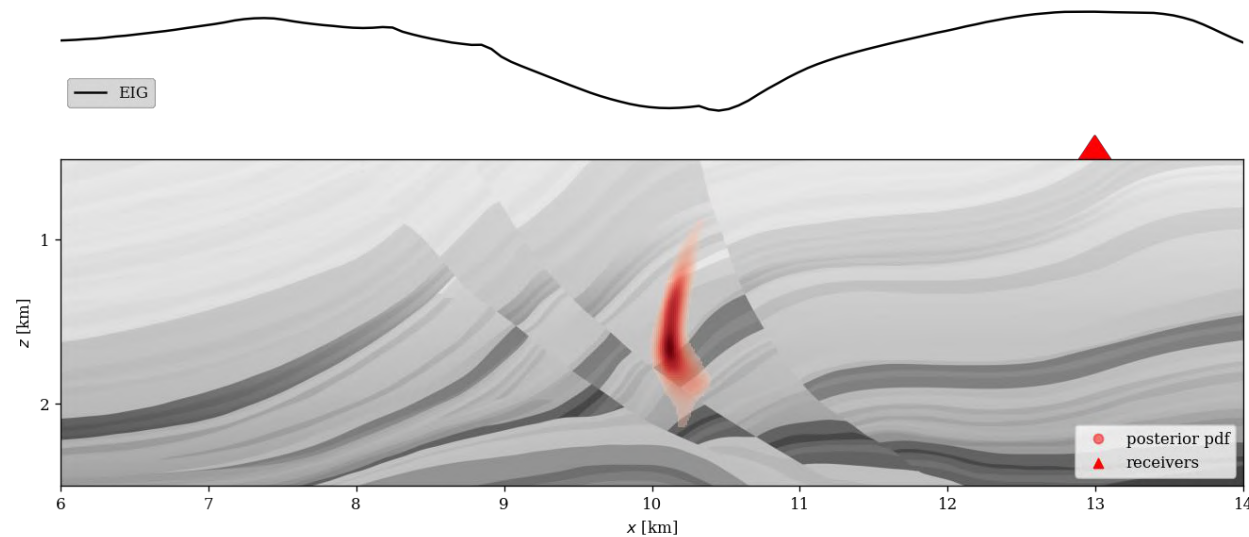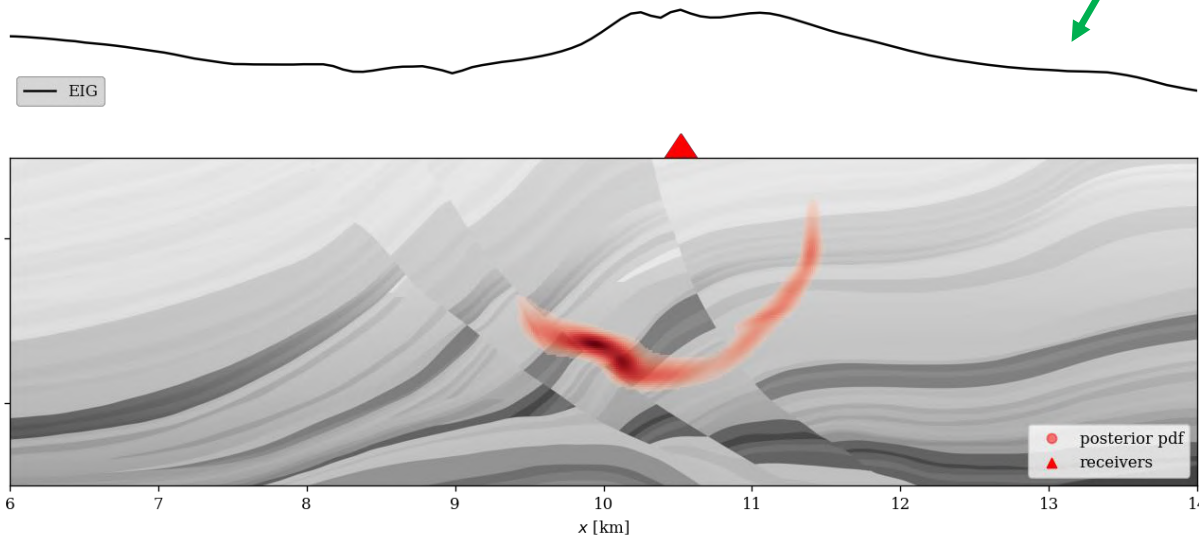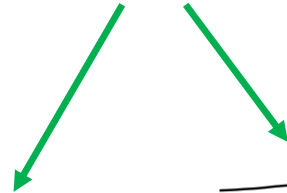**What is the best design to constrain the epicenter?**

What is the best design to constrain the source depth?
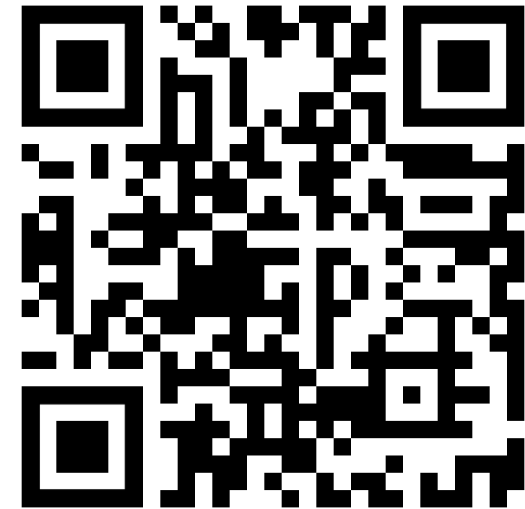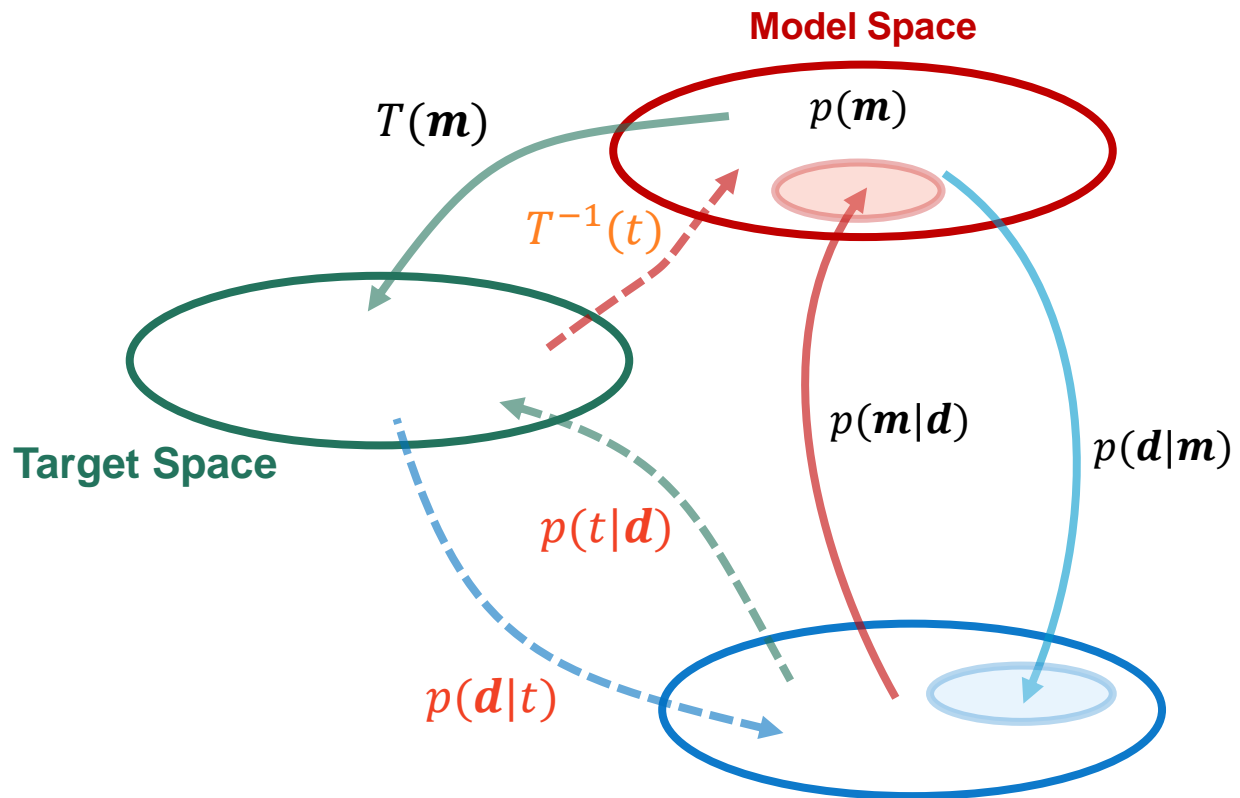
How to find this design ?

EIG estimation for interrogation problems is not trivial, and most standard experimental design methods can not be applied.

Expected Information Gain

What is the best design to constrain the epicenter?

What is the best design to constrain the source depth?

**Visit my website (dominik-strutz.github.io)
for further updates and contact information**