Richard K Hind* (hind.1@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556. Symplectic embeddings in dimension greater than four. Preliminary report.

In their 2012 paper McDuff and Schlenk completely solved the existence problem for symplectic embeddings of 4-dimensional ellipsoids into balls. In other words, they calculated the function

$$c(x) = \inf \{ R | E(1, x) \hookrightarrow B^4(R) \}.$$ 

Here an ellipsoid inside the standard symplectic Euclidean space is written as

$$E(a, b) = \left\{ \pi \left( \frac{x}{a} p_1^2 + q_1^2 \right) + \pi \left( \frac{x}{b} p_2^2 + q_2^2 \right) < 1 \right\}$$

and

$$B^4(R) = E(R, R)$$

is a ball.

For a fixed \( n \geq 3 \) we can define the function

$$f(x) = \inf \{ R | E(1, x) \times \mathbb{R}^{2(n-2)} \hookrightarrow B^4(R) \times \mathbb{R}^{2(n-2)} \}.$$ 

I will talk about some constructions and obstructions which give upper and lower bounds respectively for \( f(x) \). It is clear that \( f(x) \leq c(x) \) but it turns out we have equality precisely when \( x \leq \tau^4 \), the fourth power of the golden ratio. This is work in progress with Daniel Cristofaro-Gardiner. (Received January 20, 2015)