$\mathbf{IRLS}:\ \mathbf{Fix}\ \{\epsilon_{\mathbf{q}}\},\ \beta-\mathbf{search}$ **IRLS**: **Fix**  $\{\epsilon_{\mathbf{q}}\}, \ \beta^{(\mathbf{k})}, \ \gamma^{(\mathbf{k})}$ 0.6  $\begin{array}{ll} {\rm q}{=}0,\,\epsilon^{(k)}=\;1e-8\\ {\phi_{\rm d}^{(k)}=27.23} \end{array}$ q=0,  $\epsilon^{(k)} = 1e - 8$ Iterations Iterations  $\overline{\phi_{\mathbf{d}}^{(\mathbf{k})}} = 30.52$  $\beta = 42$  $\beta = 23$ 0.5  $\phi_m^{(k)} = 2040.6$  $\phi_m^{(k)} = 2121.56$ CG = 6907CG = 3564 $\|\delta m\|_1 = 5.81$  $\|\delta m\|_1 = 5.84$ 0.4  $m^{0.3}$ 0.2 0.1 0 -0.1 0.2 0.6 0.8 0.4 0.2 0.4 0.6 8.0 zz(b)  $\phi_d$ ,  $\phi_m$ (a)10<sup>4</sup> 10<sup>3</sup> 10<sup>2</sup>  $\phi_d^*$ 10<sup>1</sup> 0 10 30 50 20 30 20 40 60 0 10 40 50 **IRLS Steps IRLS Steps**  $l_p - norm$  $l_2 - norm$