

We discuss Fredholm determinants of the form identity minus difference of two spectral projections corresponding to isolated parts of the spectrum of pairs of self-adjoint operators. We prove an identity relating such Fredholm determinants to a double integral over the spectral shift function in the case where the underlying pair of operators differs by a rank-one perturbation. We apply this formula to the subspace perturbation problem. We also discuss a conjecture for general trace-class perturbations.