

resonance_type.hpp

```
1  #ifndef RESONANCE_TYPE_HPP
2  #define RESONANCE_TYPE_HPP
3
4  #include "particle_type.hpp"
5
6  #include <iomanip>
7  #include <iostream>
8
9  class ResonanceType : public ParticleType {
10 public:
11     double get_width() const override;
12
13     void print() const override;
14
15     bool operator==(const ResonanceType& other) const;
16     bool operator!=(const ResonanceType& other) const;
17
18     ResonanceType(char name, double mass, int charge, double width);
19
20 private:
21     const double width_;
22 };
23
24 inline double ResonanceType::get_width() const { return width_; }
25
26 inline void ResonanceType::print() const {
27     std::cout << "Particle " << get_name() << ": mass = " << std::setw(6)
28         << get_mass() << ", charge = " << std::setw(6) << get_charge()
29         << ", width = " << std::setw(6) << get_width() << '\n';
30 }
31
32 inline ResonanceType::ResonanceType(char name, double mass, int charge,
33                                     double width)
34     : ParticleType(name, mass, charge)
35     , width_(width) {}
36
37 inline bool ResonanceType::operator==(const ResonanceType& other) const {
38     return get_charge() == other.get_charge() && get_mass() == other.get_mass()
39         && get_width() == other.get_width();
40 }
41
42 inline bool ResonanceType::operator!=(const ResonanceType& other) const {
43     return !(*this == other);
44 }
45 #endif
```