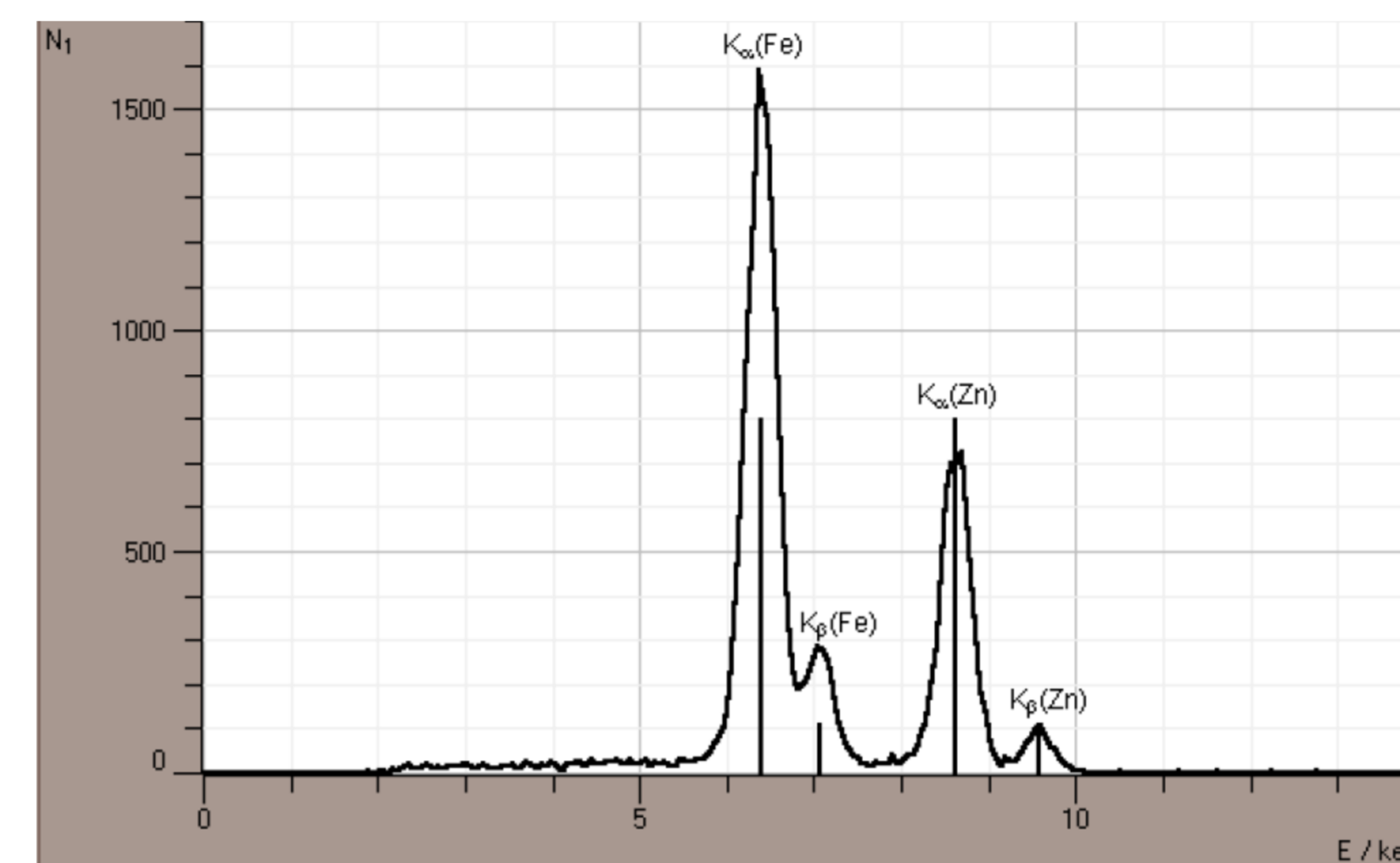
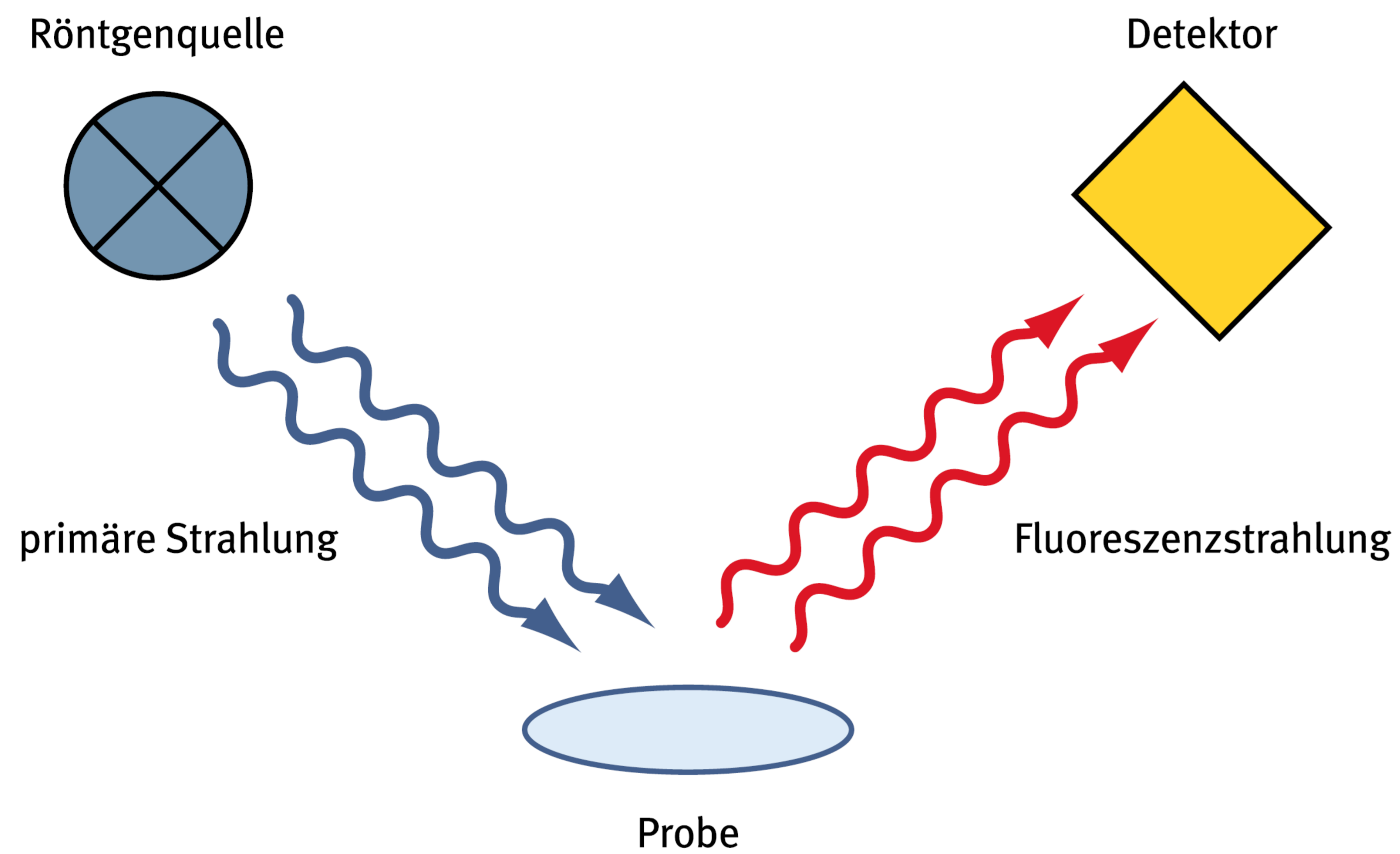
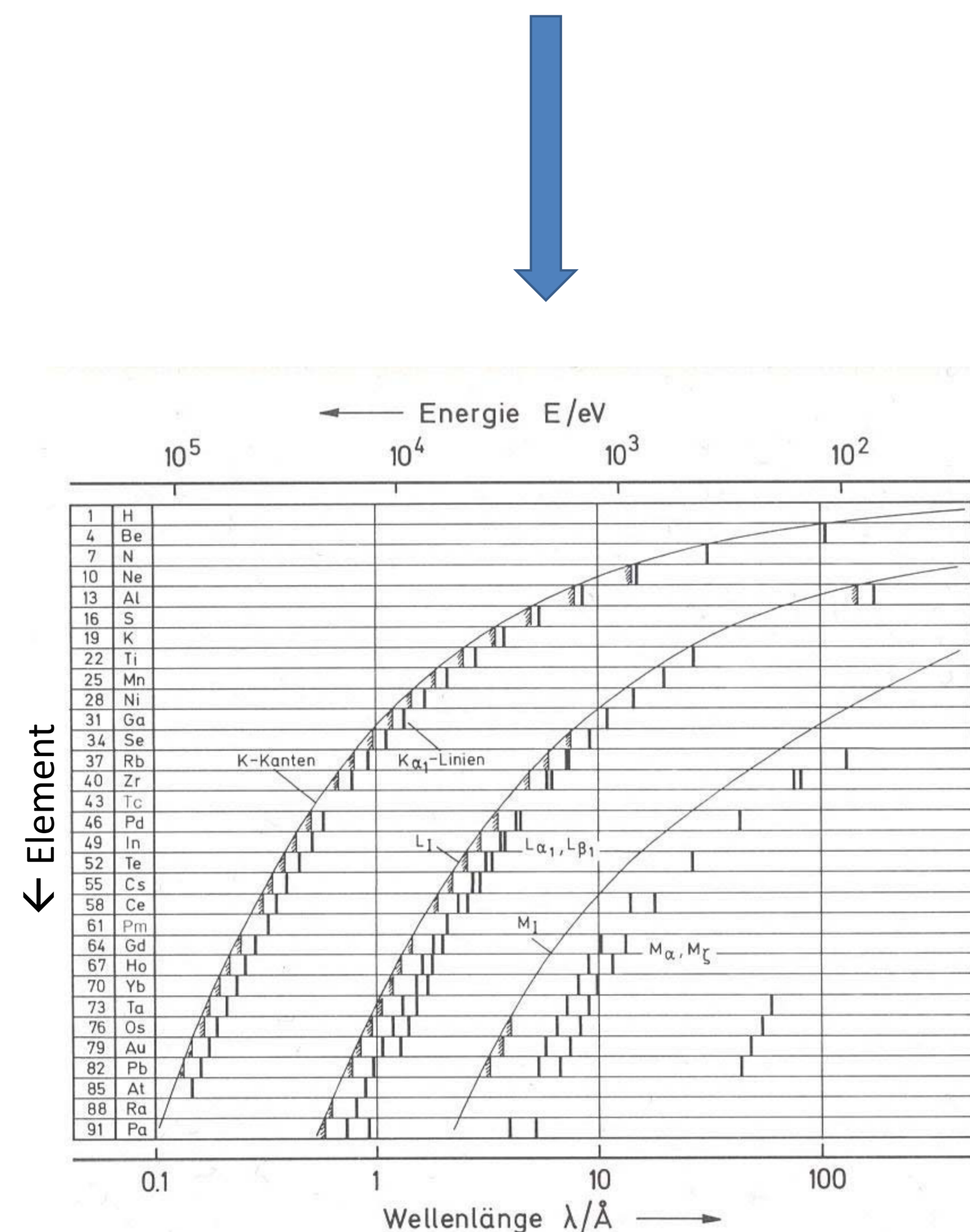


# Ist Ihr Schmuck echt?

# Mit Röntgenfluoreszenz Elemente identifizieren



Legende	
Ordnungszahl	Symbol
Name	Gruppe
Atomgewicht	Elektronenkonfiguration
1 Wasserstoff	schwarz = nicht radioaktiv
2 Helium	gelb = radioaktiv
3 Lithium	schwarz = Feststoff
4 Beryllium	rot = Gas
5 Bor	blau = Flüssigkeit
6 Kohlenstoff	grün = Alkalimetalle
7 Stickstoff	rot = Erdalkalimetalle
8 Sauerstoff	blau = Übergangsmetalle
9 Fluor	blau = Halbmetalle
10 Neon	blau = Nichtmetalle
11 Natrium	blau = Landhoftmetalle
12 Magnesium	blau = Halogene
13 Aluminium	blau = Actinoide
14 Silicium	blau = Erdgas
15 Phosphor	blau = Edelgase
16 Schwefel	blau = Actinoide
17 Chlor	blau = Actinoide
18 Argon	blau = Actinoide
19 Kalium	blau = Actinoide
20 Calcium	blau = Actinoide
21 Scandium	blau = Actinoide
22 Titan	blau = Actinoide
23 Vanadium	blau = Actinoide
24 Chrom	blau = Actinoide
25 Mangan	blau = Actinoide
26 Eisen	blau = Actinoide
27 Kobalt	blau = Actinoide
28 Nickel	blau = Actinoide
29 Kupfer	blau = Actinoide
30 Zink	blau = Actinoide
31 Gallium	blau = Actinoide
32 Germanium	blau = Actinoide
33 Arsen	blau = Actinoide
34 Selen	blau = Actinoide
35 Brom	blau = Actinoide
36 Krypton	blau = Actinoide
37 Rubidium	blau = Actinoide
38 Strontium	blau = Actinoide
39 Yttrium	blau = Actinoide
40 Zirkon	blau = Actinoide
41 Niob	blau = Actinoide
42 Molybdän	blau = Actinoide
43 Technetium	blau = Actinoide
44 Ruthenium	blau = Actinoide
45 Rhodium	blau = Actinoide
46 Palladium	blau = Actinoide
47 Silber	blau = Actinoide
48 Cadmium	blau = Actinoide
49 Indium	blau = Actinoide
50 Zinn	blau = Actinoide
51 Antimon	blau = Actinoide
52 Tellur	blau = Actinoide
53 Iod	blau = Actinoide
54 Xenon	blau = Actinoide
55 Cäsium	blau = Actinoide
56 Barium	blau = Actinoide
57 Lanthan	blau = Actinoide
58 Cer	blau = Actinoide
59 Praseodym	blau = Actinoide
60 Neodym	blau = Actinoide
61 Promethium	blau = Actinoide
62 Samarium	blau = Actinoide
63 Europium	blau = Actinoide
64 Gadolinium	blau = Actinoide
65 Terbium	blau = Actinoide
66 Dysprosium	blau = Actinoide
67 Holmium	blau = Actinoide
68 Erbium	blau = Actinoide
69 Thulium	blau = Actinoide
70 Ytterbium	blau = Actinoide
71 Lutetium	blau = Actinoide
72 Hafnium	blau = Actinoide
73 Tantalum	blau = Actinoide
74 Wolfram	blau = Actinoide
75 Rhenium	blau = Actinoide
76 Osmium	blau = Actinoide
77 Iridium	blau = Actinoide
78 Platin	blau = Actinoide
79 Gold	blau = Actinoide
80 Quecksilber	blau = Actinoide
81 Thallium	blau = Actinoide
82 Blei	blau = Actinoide
83 Bismut	blau = Actinoide
84 Polonium	blau = Actinoide
85 Astat	blau = Actinoide
86 Radon	blau = Actinoide
87 Francium	blau = Actinoide
88 Radium	blau = Actinoide
89 Actinium	blau = Actinoide
90 Thorium	blau = Actinoide
91 Protactinium	blau = Actinoide
92 Uran	blau = Actinoide
93 Neptunium	blau = Actinoide
94 Plutonium	blau = Actinoide
95 Americium	blau = Actinoide
96 Curium	blau = Actinoide
97 Berkeium	blau = Actinoide
98 Californium	blau = Actinoide
99 Einsteinium	blau = Actinoide
100 Fermium	blau = Actinoide
101 Mendelevium	blau = Actinoide
102 Nobelium	blau = Actinoide
103 Lawrencium	blau = Actinoide
104 Rutherfordium	blau = Actinoide
105 Dubnium	blau = Actinoide
106 Seaborgium	blau = Actinoide
107 Bohrium	blau = Actinoide
108 Hassium	blau = Actinoide
109 Meitnerium	blau = Actinoide
110 Darmstadtium	blau = Actinoide
111 Roentgenium	blau = Actinoide
112 Copernicium	blau = Actinoide
113 Nihonium	blau = Actinoide
114 Flourovium	blau = Actinoide
115 Moscovium	blau = Actinoide
116 Livermorium	blau = Actinoide
117 Tennessium	blau = Actinoide
118 Oganesson	blau = Actinoide



## Wie funktioniert's?

Energie der Fluoreszenzphotonen:

$$E_{\gamma} = (Z - S)^2 \cdot 13,6 \text{ eV} \cdot \left( \frac{1}{n_k^2} - \frac{1}{n_i^2} \right)$$

mit Z: Kernladungszahl, S: Abschirmzahl.

Energie der Röntgenphotonen der K<sub>α</sub>-Linien:

$$E_{\gamma} \approx 10 \cdot Z^2 \text{ eV}$$