



# Biometric Instrumentation in Cosmetics

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# Introduction: What is biometrics?

- the use of a distinctive and relatively stable physical or behavioural characteristic of a person for the purpose of recognition
- a growing and important applications area
- increasing worldwide interest in security makes biometrics even more valuable and desirable
- intersection of a number of disciplines; biology, statistics, computer science and engineering

# Applications

## Biometric Instrumentation

Most commonly used in the following:



**Logical Access Control**



**Physical Access Entry**



**Time & Attendance**



**Law Enforcement**



**Surveillance**

# Applications

## Biometric Instrumentation in Cosmetics

Objective and repeatable dermal biometric instrumentation techniques can be used to measure:

Skin Moisture Content

Sebum Content

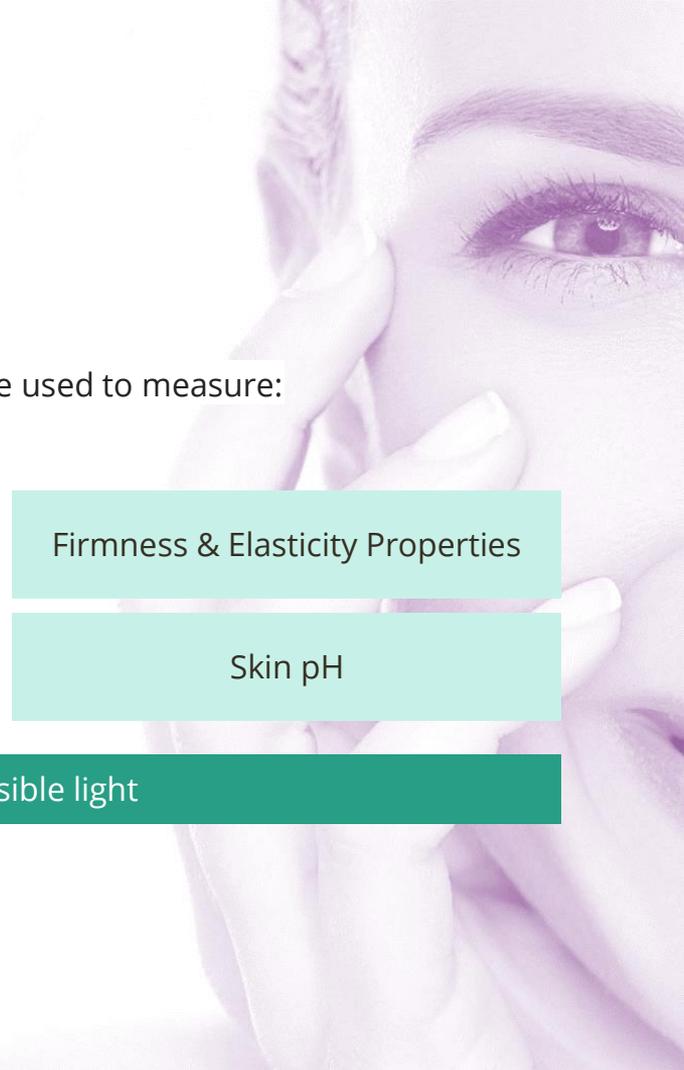
Firmness & Elasticity Properties

Skin Thickness

Transepidermal Water Loss

Skin pH

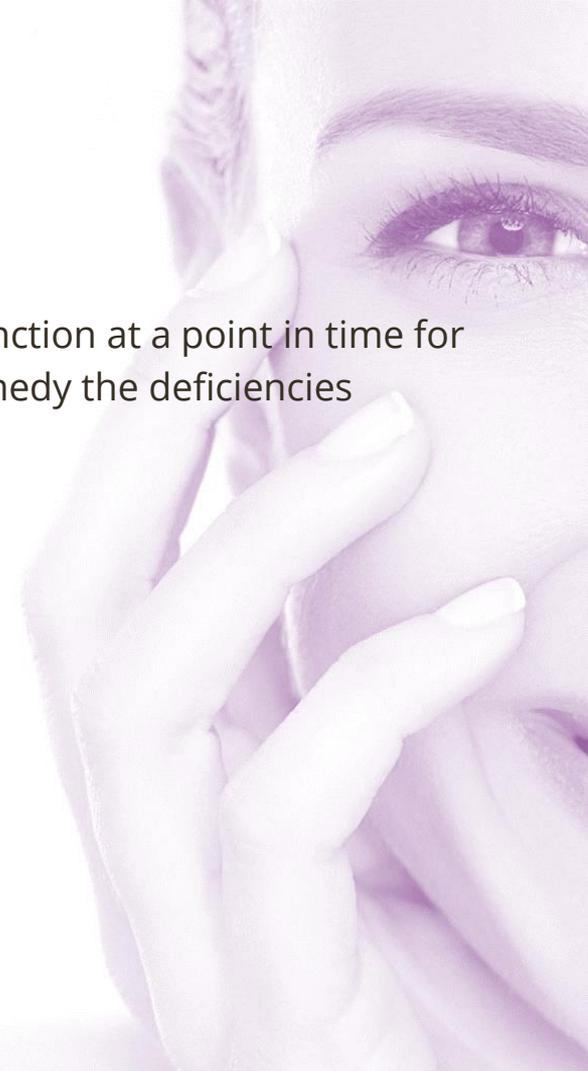
Perform photo analysis of the face with UV and visible light



# Applications

## Biometric Instrumentation in Cosmetics

A method and a process of determining individual skin structure and function at a point in time for the purpose of determining and formulating skin care products that remedy the deficiencies observed in the skin



# Applications

## Biometric Instrumentation in Cosmetics

A method and a process of determining individual skin structure and function at a point in time for the purpose of determining and formulating skin care products that remedy the deficiencies observed in the skin

- By customizing the skin care products, the individually added **active ingredients, diluents and surfactant systems** can be modified, and **the dermal penetration rates and stability** of the product can be controlled.
- To prevent the loss of active materials in the product, the skin care product is manufactured for an individual consumer and is **only sold in a quantity of a three months supply**
- **Variety of ingredients** can be combined that a mass produced product cannot contain due to stability/compatibility issues

This invention overcomes the limitations in formulating skin products for the mass market by providing **a product designed with objective biometric data and created for the specific clinical condition of an individual's skin**

**Presented video from:**

<https://www.youtube.com/watch?v=bGpbw6gwpGI>

**The video is about:**

*Skinprint: perform process where they analyze structure and make custom blended products by specific and targeted detection using photographic equipment*

# Applications

## PRIMOS 3D Optical Measurement

- Fast and highly precise measuring data acquisition. An assortment of different measuring fields, realised by means of different precise recording optics, ensures a wide spectrum of measuring possibilities with ranges up to micrometers.
- Treated parts of the skin can be evaluated for all necessary parameters, e.g. roughness, volumes and dimensions of wrinkles or scars, etc.
- The software allows regaining of highly precise skin areas measured before and after a medical or cosmetic treatment. Application fields are clinical applications, dermatology, aesthetic medicine and biometrics.



Measurement of crow's feet with PRIMOS

# Applications

## True North Skin Analysis Programme



### Face mapping, visual analysis and Hand held systems

have until now been the most effective form of skin analysis and have established the foundations for the most in depth and professional skincare consultations.

# Applications

## True North Skin Analysis Programme



**3 simple steps in 15 minutes:**  
scan and analyse, consultation, product recommendation - sale

# Applications

## Biometric Instrumentation in Cosmetics

### Cosmeceuticals

- The cosmetic and pharmaceutical efficacy of tretinoin and other molecules has been unequivocally established by cosmetic, clinical study, and instrumentation methods.
- Biometrics in dermatology is an essential tool where data evaluation results in valid interpretations. Applied biometrics provide the clinician and researcher with state-of-the-art guidelines to assess the severity of common skin diseases. An additional aspect that will be of interest to pharmacologists addresses pharmacologic assays.

# Advantages and Disadvantages

Advantages	Disadvantages
Efficient and Secure Patient Information	Public perception
Non-invasive	Increased rate of error
Fast measurement	High Cost

# Conclusion

- ✓ Biometrics deals with the automatic recognition of individuals based on statistical analysis of physiological and/or behavioral characteristics and has a growing applications in the field of cosmetics .
- ✓ Any human physiological or behavioral characteristic that is unique, universal, stable, and collectable could be used as a biometric characteristic.
- ✓ Current applications in cosmetics include objective and repeatable biometric instrumentation for UV and Visible light photo analysis of the face, which overcomes limitations of formulation skin products for the market, softwares that allow for regaining of highly precise skin areas such as PRIMOS 3S Optical measurement, and True North Skin analysis program.
- ✓ One of the advantages biometrics instrumentation in cosmetics is securing patient information, customization of formulation, and disadvantages include invasion of privacy, increased rate of error for customers who experienced life debilitating accidents.

# References

Brown, S. 2010. *Ethical issues and security monitoring trends in global healthcare: Technological advancements*. USA: IGI Global.

Dunstone, T. (2013, November 14). Unusual biometric techniques. Retrieved from <http://www.biometricsinstitute.org/news.php/146/unusual-biometric-techniques>