

# Neuvièmes Journées Informatique de l'IN2P3-IRFU

## Développement d'une application Web en Symfony2 pour le projet CKM Live

**Alexandre CLAUDE**

LPC Clermont-Ferrand – Service Informatique

**Jérôme Charles** CPT Marseille

**Sébastien Descotes-Genon** LPT Orsay

**Stéphane Monteil** LPC Clermont-Ferrand



*Montpellier,  
13-16 Octobre 2014*

# Motivations / Contexte

## CKMfitter en quelques mots...

- Groupe d'une dizaine de physiciens, expérimentateurs et théoriciens, qui conduisent des analyses phénoménologiques des données de la ***Physique des Saveurs dans le cadre du Modèle Standard*** ou de quelques-unes de ses extensions.

## But de CKM Live Web...

- Mise à disposition de logiciels complexes (fastfitter) à l'extérieur du groupe CKM fitter
- Interface simplifiée




# Cahier des charges

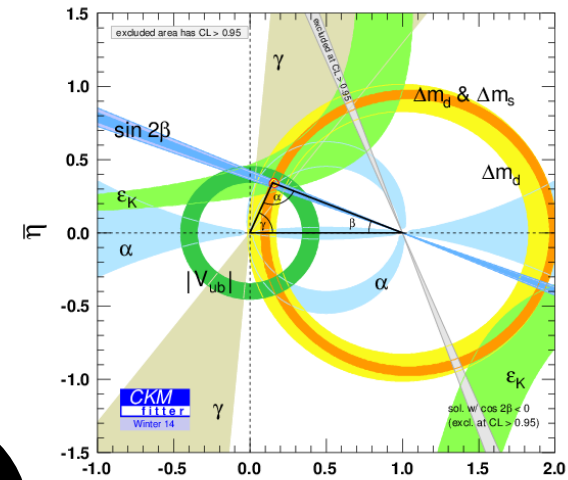
- Zones Publique | Analyse | Admin
- Une analyse: **Modèle > Scenario > Quantités**
- Données transmises à un programme CKM fitter (fastfitter)
- Asynchrone – Récupération des résultats

→ Du classique Web

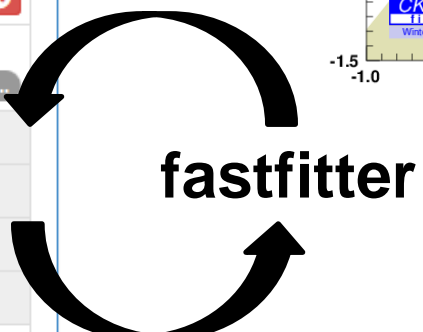
Targets Inputs

⊕ Your input Observable(s)

Observable	Property	Explanations	Actions
#12 - $ V_{cb} $	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $ V_{cb} $			
#1 - $A$	none	<a href="#">A help link</a>	<a href="#">See <math>A</math> of <math> V_{ub} </math></a>
#2 - $\lambda$	none	<a href="#">A help link</a>	<a href="#">See <math>\lambda</math> of <math> V_{ub} </math></a>
#3 - $\bar{\rho}$	none	<a href="#">A help link</a>	<a href="#">See <math>\bar{\rho}</math> of <math> V_{ub} </math></a>
#4 - $\bar{\eta}$	none	<a href="#">A help link</a>	<a href="#">See <math>\bar{\eta}</math> of <math> V_{ub} </math></a>
See parameter...			
#13 - $\alpha$	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $\alpha$			
See parameter...			



Résultats



Choix de quantités physiques + scenario

# Technologies

## Symfony2 – Framework PHP

Expérience en 1.4

Projet Web classique (moyen, long terme)

Bonnes pratiques du Web

Communauté & Documentations

## Twitter Bootstrap 3 - Framework FrontEnd

« ASR Web » des demandes récurrentes pour plusieurs supports

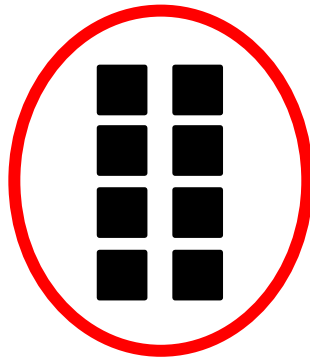
→ Tester le *Responsive Web Design* : adaptation au support, layout

<http://alistapart.com/article/responsive-web-design>

# Symfony2

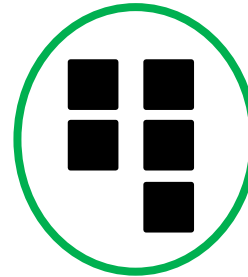
## Composants Symfony2

- découplés, réutilisables,
- problèmes courants en développement Web

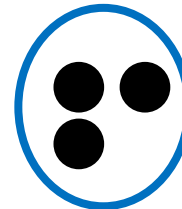


## Librairies tierces

SwiftMailer, l'ORM Doctrine, Twig  
./vendor/



**Bundles tiers**



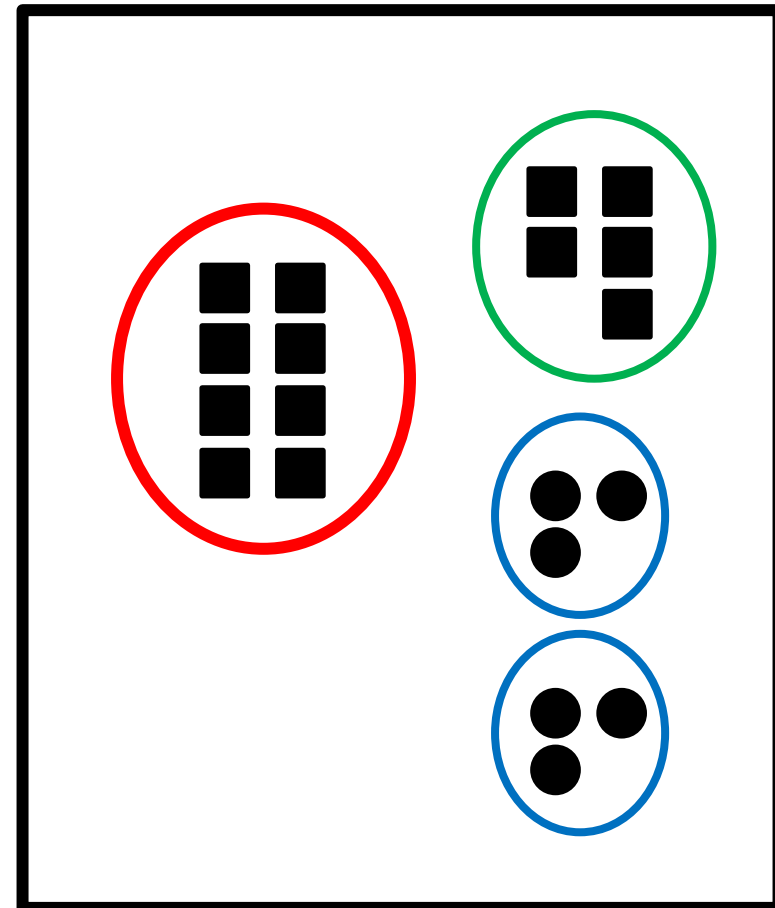
**Bundles code  
métier**

# Full Stack Framework Symfony2

Une sélection de **composants**, de bibliothèques tierces, une configuration et un “mécanisme” qui relie le tout

Tout est bundle en Symfony2  
**FrameworkBundle**, **SecurityBundle** ...

## Full Stack Framework



# Bundle

Ensemble structuré de fichiers (PHP, css, JS, images,...) implémentant une **fonctionnalité** unique (un blog, un forum, ...) et **partageable**

- Bundle tier (communauté) <http://knpbundles.com/>

2412 bundles for Symfony2

↑↓ Trending

2446

## FOSUserBundle (ready)

Provides user management for your Symfony2 Project. Compatible with Doctrine ORM & ODM, and Propel.

owner: [FriendsOfSymfony](#), license: [MIT](#), activity [Low](#)



1174

## SonataAdminBundle

AdminBundle - The missing Symfony2 Admin Generator

owner: [sonata-project](#), license: [MIT](#), activity [Low](#)



# Structure d'une appli Symfony2

## Project

app

- Cache
- Config
- logs

src

vendor

web

- app.php
- app\_dev.php

**./app/**

application kernel et configuration,

**./src/**

code métier du projet: nos Bundles

**./vendor/**

bibliothèques et bundles tiers

**./web/**

répertoire Web racine: contrôleur  
frontal, asset...



# Environnement du Projet CKM Live

## COMPOSER



- Application-level dependency manager for PHP
- {PEAR, PECL} vs Composer  
(PHP) (App)
- [packagist.org](http://packagist.org) : principal repository
- Autoload des classes

# Composer: composer.json

```
"require": {  
    "php": ">=5.3.3",  
    "symfony/symfony": "~2.4",  
    "doctrine/orm": "~2.2, >=2.2.3",  
    "doctrine/doctrine-bundle": "~1.2",  
    "twig/extensions": "~1.0",  
    "symfony/assetic-bundle": "~2.3",  
    "symfony/swiftmailer-bundle": "~2.3",  
    "symfony/monolog-bundle": "~2.4",  
    "sensio/distribution-bundle": "~2.3",  
    "sensio/framework-extra-bundle": "~3.0",  
    "sensio/generator-bundle": "~2.3",  
    "incenteev/composer-parameter-handler": "~2.0",  
    "twbs/bootstrap": "3.0.0",  
    "jquery/jquery": "1.10.2",  
    "leafo/lessphp": "dev-master#85bd4557920d5f4fcbf4",  
    "fortawesome/font-awesome": "dev-4.0.4-wip",  
    "craue/formflow-bundle": "~2.0",  
    "friendsofsymfony/user-bundle": "dev-master"  
},
```

**Dépendances du projet**

“package”: “version”

```
$ php composer.phar update friendsofsymfony/user-bundle
```

# ORM - Doctrine2



## Object-Relational Mapping

Données relationnelles ↔ Données orientées Objet

**Entité = Classe métier**

```
$em = $this->getDoctrine()->getManager();
```

Entity  
Manager

```
$analysis = new Analysis();
```

Création et  
manipulation de  
l'objet

```
$analysis->setScenario($scenario);
```

```
$analysis->setUser(
```

```
    $this->get('security.context')->getToken()->getUser()  
);
```

```
$em->persist( $analysis );
```

Persistence

```
$em->flush();
```

# Un exemple d'entité: User

**Bundle tier UserBundle**  
(mère)

**Bundle User de l'app**  
(fille)

Hérite de

```
abstract class User implements UserInterface, Group
```

```
{  
    protected $id;  
  
    /**  
     * @var string  
     */  
    protected $username;  
  
    /**  
     * @var string  
     */  
    protected $usernameCanonical;  
  
    /**  
     * @var string  
     */  
    protected $email;  
}
```

```
class User extends BaseUser
```

```
{  
    /**  
     * @ORM\Column(type="string", length=255)  
     *  
     * @Assert\NotBlank(message="Please enter your name.",  
     * @Assert\Length(  
     *     min=3,  
     *     max="255",  
     *     minMessage="The name is too short.",  
     *     maxMessage="The name is too long.",  
     *     groups={"Registration", "Profile"}  
     * )  
     */  
    protected $name;  
}
```

**Annotations**  
=  
**Meta data**  
(Type & Assert)

# Un exemple d'entité: User

→ Génération de la table User

→ Attributs de la classe mère  
(Bundle tier UserBundle)

→ Attributs spécifiques à la  
classe fille User

```
ckm.User
id : int(11)
username : varchar(255)
password : varchar(255)
salt : varchar(255)
roles : longtext
username_canonical : varchar(255)
email : varchar(255)
email_canonical : varchar(255)
# enabled : tinyint(1)
last_login : datetime
# locked : tinyint(1)
# expired : tinyint(1)
expires_at : datetime
confirmation_token : varchar(255)
password_requested_at : datetime
# credentials_expired : tinyint(1)
credentials_expire_at : datetime
```

```
name : varchar(255)
institut : varchar(255)
url : varchar(255)
phone : varchar(10)
```



Username:

Email:

The name is too short.

Name:

Institut:

url institut:

phone:

Password:

Verification:

Captcha  Code does not match

```
/**  
 * @ORM\Column(type="string", length=255)  
 *  
 * @Assert\NotBlank(message="Please enter your name.")  
 * @Assert\Length(  
 *     min=3,  
 *     max="255",  
 *     minMessage="The name is too short.",  
 *     maxMessage="The name is too long.",  
 *     groups={"Registration", "Profile"})  
 * )  
 */  
protected $name;
```



Assert  
↓  
Form server validation

# Twitter Bootstrap

**BUT**

Premier regard sur le  
«*Responsive Design*»

- **Grid system:**  
Adaptation des « *colonnes* » en fonction du layout
- **Menu**

# Twitter Bootstrap : Menu

alclaude

CKM Fitter

Home

Communication

CKM Analysis

CKM Administration









## Analysis - Personalize your analysis

\* AZERTY






Targets

Inputs

### Your input Observable(s)

Observable	Property	Explanations	Actions
#12 - $ V_{cb} $	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $ V_{cb} $			<a href="#">See parameter...</a>
#1 - $A$	none	<a href="#">A help link</a>	<a href="#">See <math>A</math> of <math> V_{ub} </math></a>
#2 - $\lambda$	none	<a href="#">A help link</a>	<a href="#">See <math>\lambda</math> of <math> V_{ub} </math></a>
#3 - $\bar{\rho}$	none	<a href="#">A help link</a>	<a href="#">See <math>\bar{\rho}</math> of <math> V_{ub} </math></a>
#4 - $\bar{\eta}$	none	<a href="#">A help link</a>	<a href="#">See <math>\bar{\eta}</math> of <math> V_{ub} </math></a>
<hr/>			
#13 - $\alpha$	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $\alpha$			<a href="#">See parameter...</a>
<hr/>			
#14 - $\sin 2\beta$	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $\sin 2\beta$			<a href="#">See parameter...</a>
<hr/>			
#15 - $\cos 2\beta$	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $\cos 2\beta$			<a href="#">See parameter...</a>

### Next step Analysis

- Re-choose target 
- Re-choose input 
- See datacard 
- Remove your Analysis 
- Finalise Analysis 

### Your analysis properties

- Modify granularity 250







# Analysis - Personalize your analysis

\* AZERTY 

Targets



Inputs

⊕ Your input Observable(s)

Observable	Property	Explanations	Actions
#12 - $ V_{cb} $	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $ V_{cb} $			<a href="#">See parameter...</a>
#1 - $A$	none	<a href="#">A help link</a>	See $A$ of $ V_{ub} $
#2 - $\lambda$	none	<a href="#">A help link</a>	See $\lambda$ of $ V_{ub} $
#3 - $\bar{\rho}$	none	<a href="#">A help link</a>	See $\bar{\rho}$ of $ V_{ub} $
#4 - $\bar{\eta}$	none	<a href="#">A help link</a>	See $\bar{\eta}$ of $ V_{ub} $
#13 - $\alpha$	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $\alpha$			<a href="#">See parameter...</a>

# Twitter Bootstrap : Menu

The screenshot displays the CKM Fitter application interface. At the top, the title "CKM Fitter" is shown next to a hamburger menu icon. A navigation menu is open, listing "Home", "Communication", "CKM Analysis", and "CKM Administration", with a user profile "alclaude" at the bottom. Below the menu, a blue header reads "Your input Observable(s)". A table lists the input observables with columns for "Observable", "Property", "Explanations", and "Actions".

Observable	Property	Explanations	Actions
#12 - $ V_{cb} $	FPCP13	<a href="#">A help link</a>	 
+ Parameters of the Observable $ V_{cb} $			<a href="#">See parameter...</a>
#1 - $A$	none	<a href="#">A help link</a>	See $A$ of $ V_{ub} $
#2 - $\lambda$	none	<a href="#">A help link</a>	See $\lambda$ of $ V_{ub} $

# Conclusion / Perspectives

- **Satisfait** de Symfony2 et TWBS: **OUI**... mais
  - Formulaires complexes
  - Est-ce que je suis bien les bonnes recommandations en terme de « code » symfony ?
  - Autres Framework ? Performance, simplicité ?
  - Upgrade ?
- **Couplage** des Bundles

Should everything really be a bundle in Symfony 2.x?  
<http://stackoverflow.com/questions/9999433/should-everything-really-be-a-bundle-in-symfony-2-x>
- Utiliser des **composants Symfony** pour d'autres projets PHP
- **CMF** (Content Management Framework)